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Copyright, 1940, by The Petroleum Publishing Company

Thirty years ago you and the rest of the kids walked to the little red school house, often many miles to learn the three R's. Today over 80,000 school buses take more than three million rural children to large consolidated schools. With the automobile and its many blessings, came a new Industry — Natural Gasoline. From the first Hanlon plant built in 1908 with a few barrels capacity, Hanlon-Buchanan now supplies daily thousands of barrels of uniform high quality Stabilized Natural Gasoline for domestic, coastwise and foreign markets.

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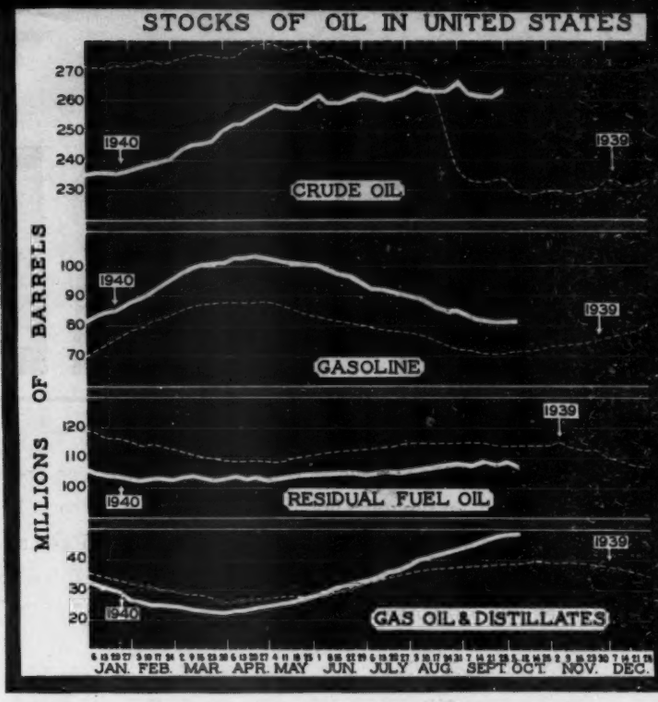
Trends

Production Drops To Lowest Figure Recorded in Year



RUPTURE of the shackles which have held Gulf Coast gasoline trading in a depressed state for many weeks and the lowest crude-oil production average in a year give the industry a little optimism this week to offset the phobia of Washington. Not since the week ended October 7, 1939, when domestic production averaged 3,426,039 bbl. daily had the crude output dipped to the mark recorded last week.

CRUDE PRODUCTION *3,488,405 bbl. daily average—down 311,142 bbl. One year ago 3,426,039 bbl.*

CRUDE STOCKS *264,209,000 bbl. as of September 28—up 2,400,000 bbl. One year ago 233,023,000 bbl.*

GASOLINE STOCKS *82,256,000 bbl. as of October 5—down 117,000 bbl. One year ago 71,292,000.*

RESIDUAL FUEL-OIL STOCKS *107,964,000 bbl. as of October 5—down 486,000 bbl. One year ago 114,128,000 bbl.*

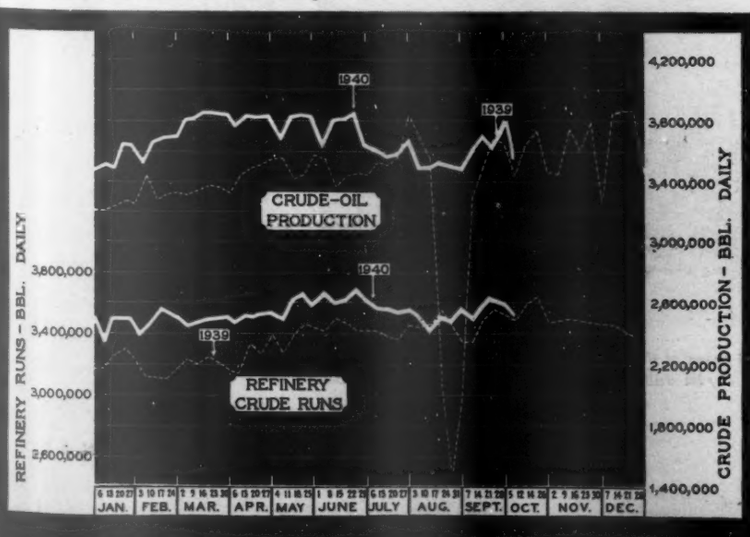
GAS OIL AND DISTILLATES *48,187,000 bbl. as of October 5—up 201,000 bbl. One year ago 38,390,000 bbl.*

REFINERY RUNS *3,555,000 bbl. daily week ended October 5—down 45,000 bbl. One year ago 3,505,000 bbl.*

Subnormal production from Texas was chiefly responsible for the steep decline for the nation. Two shutdown days caused the Texas drop. This does not, consequently, indicate that national crude production will be continued at or below the recommended level of 3,500,000 bbl., which the I.P.A.A. and the A.P.I. suggested before the Interstate Oil Compact Commission last August.

Northern movement of winter-grade motor fuel from the Gulf Coast does not necessarily imply a permanent trend. Custom is to fill motor-fuel storage in the fall at points along waterways that may be ice-bound during the winter.

Engagement of tankers for the coastwise movement of motor fuel and burning oils caused the transportation rate to rise.



Despite several improvements in the statstical position of the industry the disease transmitted by uncertainty is breaking out on various fronts. Activity of the land departments of most companies has been reduced to a minimum. The combination of 1941 budget preparation, the pending antitrust suit and a national election is one that the industry has not faced on previous occasions. Addition of the antitrust litigation to the ordinary uncertainties of election years merely adds a third confusing element.

DAILY AVERAGE PRODUCTION FOR WEEK

	Oct. 5, 1940	Bur. Mines Oct. est. of demand	October state allowables	Sept. 28, 1940
Arkansas	71,465	70,700	68,743	74,445
California	600,250	583,200	571,000	587,750
Eastern states	105,400	95,700	.....	104,900
Illinois	357,767	405,200	.....	360,267
Kansas	191,150	178,700	188,450	193,550
Louisiana	285,275	274,200	269,631	283,428
North Louisiana	*64,725*	.....	.....	*64,380*
Louisiana Gulf Coast	*220,550*	.....	.....	*219,048*
Michigan	50,153	53,900	.....	50,276
Mississippi	19,225	9,000	.....	22,478
New Mexico	99,440	104,500	104,500	99,620
Oklahoma	416,100	403,500	390,000	403,725
Rocky Mountain states	103,230	96,800	.....	101,820
Texas	1,188,950	1,305,200	1,389,534	1,517,288
East Texas	*298,700*	.....	.....	*448,046*
West Texas	*208,600*	.....	.....	*254,100*
North Central Texas	*149,450*	.....	.....	*176,150*
East Central Texas	*63,500*	.....	.....	*78,097*
Texas Panhandle	*81,150*	.....	.....	*79,297*
Gulf Coast Texas	*283,500*	.....	.....	*376,450*
Southwest Texas	*104,050*	.....	.....	*114,148*
United States	3,488,405	3,580,600	.....	3,799,547

Latent power of the distillate fuel-oil market is beginning to stir in the large consuming centers. Tank-wagon prices have been raised a quarter cent on some types of delivery in Chicago. The New York market is unchanged but suppliers in the Mid-Continent and Gulf Coast are asking the highs of quoted ranges.

Stocks of distillate fuel oils are approximately 10,000,000 bbl. higher than a year ago. Refiners are now in a position to balance their operations against winter gasoline demand at least during the early stages of the burning season.

Progress of the indicated thrust through the Balkans by the Axis powers holds an interest for the American industry. A disruption of the status in the Near East may conceivably cause some revival in export demand for petroleum. This is nothing that can be considered a possibility in the near future but the British have taken a strong position on the eastern end of the Mediterranean and rely heavily upon the petroleum resources in that section of the world.

SPARKS . . . FROM THE NEWS

WAR AND PEACE: Russia will build a 170-mile pipe line in the Ural Mountain area, the first line of any consequence to be built in the Eastern Hemisphere since the war started. Pipe-line mileage for the Western Hemisphere for the same period has totaled more than 6,000 miles.

CONVENTION TIME: The vacation season is over, but on its heels comes convention time, and the current month is a busy one convention-wise for oil men. And the programs are studded with scholarly sounding treatises on a wide variety of technical and economic subjects.

SHIFT: California has displaced New York as the state having the largest number of automobile registrations. The score: California, 2,773,698; New York, 2,743,740. The West Coast state may shortly lead the nation in gasoline consumption.

HOLD TIGHT: Speaking of the antitrust case, much may happen ere this trial is completed. The laws might be amended or modified, a new industry code system might emerge, or a war might lead to federal control of the industry. Meanwhile, however, the industry is the target for a barrage of slings and arrows.

SENTENCE SUSPENDED: Another effort in Congress has failed to embargo oil confiscated by Mexico. The State Department would like to know how to deal with a culprit without throwing him in jail.

POLITICAL STRATEGY: Head of the American Farm Bureau Federation has told President Roosevelt that antitrust attacks against big industries is politically attractive to rural voters. That's where the oil industry comes into court.

BOTTLE NECK: As the national-defense plans are unfolded it becomes increasingly apparent that the oil industry is in better shape to supply adequately the needs of this nation than a majority of the industries and facilities using the oil.

FEVER HEAT: Temperatures are rising in southeastern Nebraska, where drilling for the first time is approaching the boom stage. Some 25 tests are reported in the Falls City area, which has just been extended to within 1¾ miles of the Kansas line, and offset drilling is ahead.

UNKINDEST CUT: The oil industry has been attacked by bureaucrats for many things, but the unkindest cut of all, it seems, was one of the allegations thrown into the antitrust suit just filed. This is the one that the public is being denied the benefits of technological improvements. Surely, the suit framers had their tongues in their cheeks when they made this charge.

FUEL OIL: Refiners indicate that purchasers of fuel oil along the California and Gulf coasts are getting more specific in their demands. They are moving away from simply accepting Bunker "C." That helps to explain a quiet market for heavy fuels.

NEW ROLE: Placing Axis troops in Rumania to protect oil fields is a move which provides a new use for oil fields. Here, to rule the oil fields means the rule of the country.

AUTOMOBILES: One fact uncovered by the transportation department of the Federal Defense Board is that every person in the United States travels an average of 4,000 miles per year. The automobile and oil account for the great bulk of this travel.

MAIN STREET—EAST TEXAS STYLE . . .

Kilgore, Tex., one of the most densely drilled areas of the East Texas field, is showing a marked reservoir-pressure decline, brought about by city-lot drilling and early production. *(See story beginning Page 38)*

Axis Drive on Rumania May Be Aimed at Near East Oil

NEW YORK, Oct. 8.—Pointing of the Axis military-machine spearhead through Rumania and to the probable major objective of a naval base on the Black Sea carries a double-bladed implication for the international petroleum industry. Fundamentally, convergence of Axis power on Rumania means the complete domination of the petroleum industry in that country by Germany. The Reich influence over Rumania's 45,000,000 bbl. of yearly oil production was made almost absolute in September when a pro-Nazi government succeeded to the authority abandoned by King Carol.

The drive on Rumania may mean that the Axis Powers are forced to seek a more abundant supply of petroleum. When Italy entered the war in June that country was estimated to have in storage not more than 7 months' petroleum requirements.

The petroleum production of Rumania averaged about 124,300 bbl. daily during the first 6 months of this year. Equal importance must be assigned to the potential petroleum supply in the Near East toward which the route through Rumania is leading. It is entirely probable that the first war's goal of Berlin to Bagdad has been revived and that Rumania provides the corridor for such a thrust.

The Prize at Stake

Disturbance of petroleum supplies in the Near East would have the dual attraction for the Axis Powers of gaining oil resources of Iran, Iraq, Egypt, and other Persian Gulf fields while at the same time cutting them away from Great Britain. The combined production of the Near East is about 300,000 bbl. daily under the restrictions imposed by war.

Meanwhile, the R.A.F. continued to pound at the petroleum refineries and synthetic motor-fuel plants in Germany. Statements attributed to Hugh Dalton, Great Britain's minister of economic warfare, and official communiques indicate the intensity of attacks on Germany's fuel supplies.

Last month Mr. Dalton said that the Royal Air Force had bombed 90 per cent of Germany's synthetic-oil plants and 80 per cent of her mineral-oil refineries. On October 2, in an address before the National Defense Public Interest Committee, he admitted that Germany is "not so short of oil as I would like." However, he listed oil as one of the commodities "in which a shortage of varying degrees has been created by us in enemy territory."

Probably the most significant statement made by Mr. Dalton was that the German World War effort died out while Germany still had 1,000,000 tons of oil. "Today," he added, pointing to the greatly increased mechanization, "the dying-out point would be much higher." He declared that a shortage of oil, with a resultant breakdown of transportation, might cause a "catastrophic breakdown of the whole complicated Nazi war machine."

In pursuance of the belief that oil is one of Germany's most vulnerable points, the R.A.F. has concentrated a large portion of its attacks on German plants, both synthetic and mineral oil, and on storage depots. These attacks really had their inception around July 1, bombing previous to that having been carried on on a comparatively restricted basis. In the little more than 3 months that have elapsed since then, according to the British Air Ministry's official communiques, 200 attacks have been made on oil objectives both in Germany and in German-occupied territory in other countries. Sixty per cent of these attacks have been directed at oil refineries.

The reported location of German synthetic plants and the reported number of times they have been bombed, according to a summary of the communiques issued over the past 3 months, follows: Leuna, 3; Magdeburg, 6; Cologne, 3; Ludsigshafen, 2; Frankfurt, 3; Politz, 2; Gelsenkirchen, 13; Mannheim, 3; Monheim, 5; Bremen, 5; Kamen, 3; Homburg, 6; Sterkade, 3; Bottrop, 5; Kastrop-Rauxel, 2; Dortmund, 3; Wanne-Eickel, 2; Reisholz, 4; Salzbergen, 1; and Bohlen, 1. Mineral-oil refineries were reported bombed at Hanover, 6; Monheim, 5; Hamburg, 6; Emmerich, 1; Bremen, 5; Dortmund, 3; Reisholz, 4; Misburg, 1; Dollbergen, 1; Regensburg, 1; and Ostermoor, 1. Because of the fact that some of these cities contain both types of plants, it is impossible to distinguish between them. The number of raids reported directed at refineries of both types in the 3-month period totaled 107, including three at Ghent, Belgium, and one at Nantes, two at St. Nazaire, one at Blaze, two at Pauillac, and three at Bec de Ambes, France.

An anonymous writer in a recent issue of La Revue Petrolifere stated that there are 25 synthetic-oil plants in Germany. Assuming that no more than one plant is located in each of the cities mentioned in the Air Ministry's communiques, the 20 listed represent 80 per cent of the number of Germany's synthetic plants. What proportion of the total capacity these represent is unknown. The total capacity of all Reich plants, according to this author, is 3,710,00 tons per year, 2,400,000 tons from 13 plants operating on the I.G. Farbenindustrie hydrogenation process, 1,160,000 tons from 11 plants operating on the Fischer-Tropsch gas-synthesis process, and 150,000 tons from one plant operating on the H.I.P. bituminous-coal process.

R.A.F.'s Score to Date

Before the war the old Reich had 30 mineral-oil refineries, 20 of which were located in cities in which the R.A.F. claimed to have bombed refineries. These 20 plants had a combined capacity of 34,000 bbl. per day, or 70 per cent of Germany's known pre-war capacity. As seen in the previously mentioned list, a number of these reported attacks were in Hamburg; where, according to a 1939 issue of Auto und Kraftrad, "88 per cent of all imported crude petroleum and residues are refined." This article also stated that "77 per cent of the German refinery capacity is situated on the lower Elbe," a region which the R.A.F. has claimed to have attacked a number of times.

According to the September 7 issue of the Petroleum Times of London, 40 per cent of Germany's synthetic-oil-refining capacity is in western Germany, which makes it most vulnerable to R.A.F. attacks. However, more distant plants, including that at Politz, a suburb of Stettin, in northeastern Germany, which was described last fall as "by far the largest synthetic-gasoline plant that Germany has yet built," has been attacked. Stettin is 450 miles from the channel coast of Holland, so that planes attacking this plant would have to fly 900 miles over hostile territory. The Politz plant was scheduled to go on stream early this year. It is operated by Hydrierwerke Politz A.G. and utilizes the I.G. Bergius hydrogenation process. It underwent a 2-hour attack on September 5, according to an Air Ministry communique. Airmen's reports of having encountered heavy ground fire indicate that Germany has taken steps to protect her plants.

International News photo

Made from a German raider, this photo, according to the Berlin caption, shows oil tanks ablaze at Purfleet, British oil depot on the River Thames, fired by a direct hit by a Luftwaffe bomber

Many of the German plants, such as those at Bohlen and Magdeburg, which were begun in 1938, are very modern and have been in operation for only a few years. Among the others reported to have been bombed are the first large-scale experimental plant, which was built in 1916 at Mannheim; the plant at Ludwigshafen, where the first motor gasoline from lignite tar was prepared in 1925; and the great Leuna hydrogenation plant, construction of which was begun in 1926 and from which the first gasoline was shipped in April 1927. This gives an indication of the time it would require to build new plants or replace old ones.

According to the communiques, R.A.F. attacks

(Continued on Page 46)

T. J. STRICKLER
President, A.G.A.

GEORGE F. MITCHELL
First vice president

D. P. HARTSON
Chairman, Technical Section

One of the most interesting developments in the natural-gas industry of recent years was disclosed this week at the annual meeting of the American Gas Association.

Solution to the problem of meeting peak-load demands for gas in sections of the country where consumption fluctuates over a wide range was presented in a paper by J. A. Clark and R. W. Miller. The paper will be printed in the October 17 issue of The Oil and Gas Journal. A previous report on this development appeared in the May 9, 1940, issue of the Journal.

A. G. A. Hears How Liquefied Gas Meets Peak Loads

By J. P. O'DONNELL

ATLANTIC CITY, N. J., Oct. 9.—Two problems, both of which are peculiar to and of great importance in the natural-gas industry, were discussed during the session of the Natural Gas Section at the American Gas Association's annual meeting here this week. They are the problem of meeting peak-load demands and the problem of valuation of production-system property for rate-making purposes.

J. A. Clark, chief engineer, Hope Natural Gas Co., Clarksburg, W. Va., and R. W. Miller, research director, Hope and Peoples Natural Gas Co., Pittsburgh, presented a solution to the problem of meeting peak-load demands in a joint paper, "Liquefaction, Storage and Regasification of Natural Gas." They described the process as perfected at a pilot plant at the Cornwell station of the Hope company. The first commercial plant is now under construction at Cleveland.

The idea was suggested by the U. S. Bureau of Mines helium plant at Amarillo, Tex., where it was learned that 1 cu. ft. of liquid natural gas at atmospheric temperature will produce approximately 600 cu. ft. of free gas at ordinary temperature. It was believed that if a method of removing heat, suitable storage vessels and a process of regasification could be devised it would be relatively simple to adapt the system to the low-pressure distribution phase of a natural-gas utility.

Install Plant at Cleveland

Successful operation of the pilot plant led to the decision to install the liquid-storage plant at Cleveland and to meet peak-load demands at an estimated cost of $750,000 instead of extending high-pressure lines which would have cost $2,500,000. The Cleveland plant will be able to condense 4,000,000 cu. ft. per day and will have three storage tanks of 600,000-gal. capacity each, equal in total to 150,000,000 cu. ft. Evaporators will have a capacity of 3,000,000 cu. ft. per hour. The plant is expected to be in service before the first of the year.

H. D. Hancock of New York, president of Gas Advisers, Inc., was elected chairman of the Natural Gas Section succeeding Elmer F. Schmidt, vice president of Lone Star Gas Co., Dallas, Tex. J. French Robinson of Pittsburgh, Pa., president of Peoples Natural Gas Co., is the new vice chairman.

In discussing valuation of production-system property for rate-making purposes, E. C. Connor, consulting engineer, Dallas, Tex., said that the chief problem confronting natural-gas utilities is the development of sound reasons for including such properties in the rate base and not in the development of methods for their valuation. He suggested the following as of primary importance:

"1. The production-system property of a natural-gas utility as well as the operating charges growing out of the existence and use of this type of property have no counterparts in any other form of public-utility service, either with respect to the property itself or to its functions.

"2. Frequently there is a substantial difference between natural-gas utilities with respect to the proportionate part of the total investment represented by the cost of production-system property, to the relative proportion of the production-system property in rendition of current service and to its relative importance as an assurance of continuity of adequate service. Also in the case of individual companies, the relative importance of the production-system properties is a variable factor which is subject to substantial change from time to time.

"3. The production and transportation of natural gas for public use is the newest form of major public-utility service and perhaps for this reason there has been a widespread failure on the part of both regulatory commission and the courts to fully understand and give effect to the fact that the basic physical and economic factors which control the initiation and successful operation of a natural-gas production and transportation system are fundamentally different from those which control initiation and successful operation of any other utility enterprise. This circumstance alone has developed a tendency on the part of the representatives of public authority to adopt methods which while suitable for the proper regulation of other types of utilities, fail to produce equitable results when applied to the regulation of natural-gas utilities."

H. D. Hancock, newly elected chairman of the Natural Gas Section of the A.G.A., is the subject of the weekly biographical sketch, Page 135 of this issue.

Excerpts of interest from papers delivered by other speakers at general and special sessions follow:

W. R. Fraser, Michigan Consolidated Gas Co., Detroit, Mich., speaking on odorization of natural gas, described the colorimetric method of determining mercaptan content: "A filter paper treated with solution of copper oleate is placed in a tar camera and gas allowed to pass through it. Mercaptan in the gas reacts with the copper soap and when the paper is exposed to sunlight, the copper mercaptide develops a brown color."

C. C. Furnas, chemical engineering, Yale University: "Packed columns are used in a wide variety of situations where it is necessary to get good contact between a liquid and a gas. . . . The most striking thing . . . is that the size of packing seems to have little effect on absorption performance. Shape apparently has far more effect than size."

Scott Ewing, research associate, A.G.A., discussing cathodic protection: "The current density at which the overvoltage curve begins is the minimum current density which will prevent corrosion. It has not been possible to determine this minimum current with precision in the laboratory but the same precision, if attained in the field, will be sufficient for most practical purposes."

T. J. Strickler, vice president and general manager, Kansas City Gas Co., Kansas City, was elected president of the association. Other officers are: G. F. Mitchell, Peoples Gas, Light & Coke Co., Chicago, first vice president; G. S. Hawley, Bridgeport Gas Light Co., Bridgeport, Conn., second vice president; E. R. Acker, Central Hudson Gas & Electric Corp., Poughkeepsie, N. Y., treasurer.

More Stable Heating-Oil Price Structure Likely Soon

By J. P. O'DONNELL

NEW YORK, Oct. 7.—If present indications are borne out by subsequent events, the coming heating-oil season in the highly important East Coast district will be marked by a considerably more stable spot-market price structure than that experienced during the 1939-40 season. This promise of greater price stability has already been indicated despite the fact that the normal consuming season is only beginning. It is further indicated by the fact that inventories, as the consuming season opens, are much more nearly adequate than at the same time a year ago.

The first indication that the price structure will be more stable this season than last is seen in the fact that, at this writing, the price of No. 2 fuel oil in New York is 4.1 cents per gallon, tank car, and stationary for some weeks past. On the other hand a year ago the price was 4.375 cents and was moving upward rapidly. It is certain that the price will go higher this season than it is now but the abnormalities of the previous season are not expected to be repeated.

Last year the price advance began in late July when the "low" quotation was 3.75 cents per gallon. The advance initiated then continued without interruption until it reached a peak of 5.4 cents per gallon in March of this year. In February quotations on No. 2 fuel oil ranged from 5.10 cents to 6 cents (see Fig. 2).

Last Season's Abnormal Prices

The abnormal prices of last season are not expected to be duplicated this fall and winter because of the greater supplies available at the beginning of the current season. (See Fig. 1.) The eastern market is supplied almost entirely from three refining districts, the East Coast, Texas Gulf and Louisiana Gulf. Combined refinery and terminal stocks in these districts totaled 27,719,000 bbl. as of September 28, 1940, according to the American Petroleum Institute, against 19,635,000 bbl. as of September 23, 1939. This is an increase of 8,084,000 bbl. approximately 40 per cent. The above figures do not include an estimate of unreported stocks.

During the 6 months of the last heating-oil season, demand in the Atlantic Coast district, calculated by adding production of the East Coast district, receipts from Gulf Coast ports and withdrawals from storage on the East Coast, totaled 52,626,000 bbl. an average of 287,573 bbl. per day for the 183-day season. On the basis of this demand stocks of 19,635,000 bbl. on September 23, 1939, were equivalent to 68 days' supply.

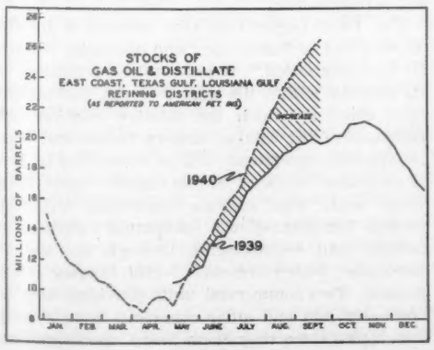


Fig. 1

Estimates of the 1940-41 demand place it from 6 to 8 per cent above the previous season. Assuming the larger figure to be more nearly correct, the daily average demand in the Atlantic Coast area would be 310,759 bbl. On that basis the stocks of 27,719,000 bbl. on September 28, 1940, were equivalent to 85 days' supply. On the basis of a 6 per cent increase in demand, the current supply would be equivalent to an even greater number of days' supply.

The bulk of the increase in gas oil and distillate fuel-oil stocks available to the East Coast market is in storage in the East Coast district. Stocks here on September 21, 1940, were 5,038,000 bbl. higher than on September 23, 1939, while there is an additional 1,829,000 bbl. available in the other two supplying districts.

In the 4 months of the normal off season for which 1940 data are obtainable—April, May, June, and July — East Coast refineries ran 67,862,000 bbl. of crude oil to stills against 63,920,000 bbl. in the same period of 1939. Had the same yields been obtained this year as last, the increased production of gas oil and distillate fuel oil would have been only 544,000 bbl. greater.

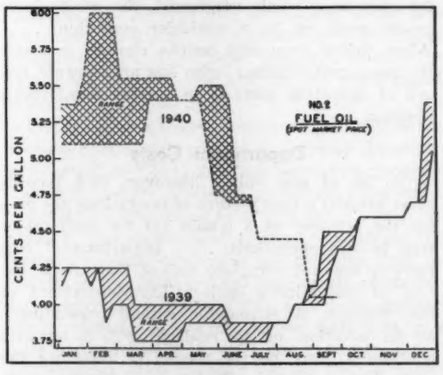


Fig. 2

In the April-July period of this year, shipments from Gulf to Atlantic ports totaled 11,152,000 bbl. against 8,241,000 bbl. last year, an increase of 2,911,000 bbl. While some of this as well as some of the production due to greater runs and larger yields went to supply last season's protracted demand, the increased receipts at Atlantic ports were due in a large measure to shippers taking advantage of lower tanker rates to build up preseason stocks in this area. Last spring tanker rates reached record heights as a result of large demand and inadequate supplies on the East Coast. Correspondingly high tanker rates are not expected this year.

Gas oil and distillate fuel yields of East Coast refineries in the first 4 months of the off season this year averaged 19.1 per cent against 13.8 per cent in the same period of the year before and this factor was substantially more important than increased runs and increased shipments from the Gulf in building up East Coast stocks to more adequate proportions. Had yields been maintained at the 1939 level, production of gas oil and distillate fuel oil in the East Coast district would have been but 9,365,000 bbl. instead of the actual production of 12,979,000 bbl. Thus by altering yields East Coast refiners made an additional 3,614,000 bbl. of gas oil and distillate fuel available in the first two-thirds of this year's off season.

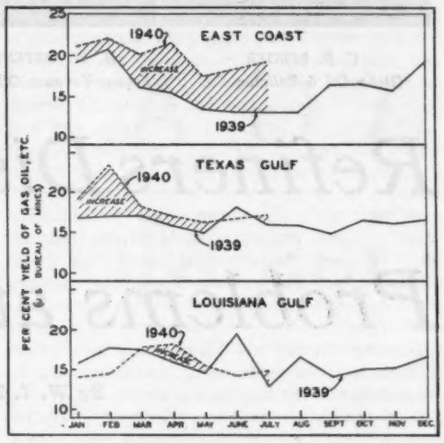


Fig. 3

Summarized, the factors accounting for the increased supply of light fuel oil this year in the off season and their relative importance follows:

	Barrels	Per cent
1. Greater yields	3,614,000	51.1
2. Larger receipts	2,911,000	41.2
3. Increased runs	544,000	7.7
Total	7,065,000	100.0

Accompanying graphs show (1) combined terminal and refinery stocks of gas oil and distillate fuel oil in the East Coast, Texas Gulf, and Louisiana Gulf refining districts as reported by the American Petroleum Institute, (2) the spot-market price range of No. 2 fuel oil in the New York harbor area for the past 2 years, and (3) the yield of gas oil and distillate fuel oil at refineries in the three districts supplying the East Coast market. The last shows that East Coast refineries have maintained higher gas-oil and distillate yields all year and that Texas Gulf and Louisiana Gulf refinery yields dropped under 1939 levels in June, but refiners gave indications that they were preparing for seasonal demand by increasing their distillate cuts in July.

The relative importance of the eastern market in the national picture is shown by the fact that the estimated demand of 52,626,000 bbl. in this area last season represented 54 per cent of the entire domestic demand. Domestic gas oil and distillate demand from October 1939 to March 1940, inclusive, totaled 97,289,000 bbl., according to the U. S. Bureau of Mines. With stocks estimated to be adequate, this important market should be more stable this year and should not require the excessive runs to stills as last year.

Chairman (extreme left) and three authors presenting papers before the Wichita regional technical meeting of the Western Petroleum Refiners Association

C. R. BERGER
Globe Oil & Refining Co.

H. W. ORTENDAHL
Socony-Vacuum Oil Co., Inc.

C. E. VOTRIAN
Bareco Oil Co.

DR. M. W. CONN
Perco, Inc.

Refiners Discuss Timely Problems at Wichita

By W. T. ZIEGENHAIN

WICHITA, Kans., Oct. 4.—Today, close to 100 refinery operators, chemists, researchers, and equipment-company representatives from Oklahoma and Kansas met to hear papers read covering three timely and important phases of plant operation. This was scheduled as the fall technical, regional meeting of the Western Petroleum Refiners Association but the attendance and interest caused the assembly room to take on more of the appearance of the annual convention.

While much of the work and discussion during the meeting was tempered by the preparedness program, the great majority of the men in attendance realized also that continued vigilance over the cost of making alternate products would be demanded by the management.

As an outstanding contribution toward the full appreciation of cost records and the analysis of these to best correlate manufacturing and sales efforts, C. E. Votrian, treasurer of the Bareco Oil Co., spoke on "Economics and the Relationship of Alternate Products to Refinery Margins." He said: "At frequent intervals during the past years many refiners have been confronted with the problem of either operating their refineries at a loss or temporarily closing them down. Some refiners are faced with a more serious decision; that of permanently discontinuing operations at a certain location, with a large loss in fixed investment. . . . Earnings of the refining and marketing operations, for a number of years, have been out of proportion to the investment required for properties, equipment, and working capital and consistently smaller than those of other manufacturing and trading companies. . . . .

"We are told that the present excessive inventory of gasoline is caused by the necessity of running more crude oil to meet the future market demand for fuel and burning oils, and at the same time we learn that fuel-oil prices are being reduced at the beginning of the seasonal demand for that product, and at a time of anticipated greater industrial activity. It is inconceivable that the industry should remain gallonage-minded while prices seem to be of minor consideration. If each oil company would conduct its operations in the same manner as it would like to have the industry as a whole conducted, the oil business would soon be in a healthier condition. . . . When prices drop and profits change to losses the resourceful refiner, who has an accurate record of operating costs is in a more comfortable position. . . .

Department Costs

"To be of any value, however, cost records must present a true picture of operations not only for the refinery as a whole but for each major step in the operations. . . . Departmental cost records are not complete unless they show the cost of maintaining each utility department of the refinery. A reasonable capital expenditure, as an addition or to replace certain obsolete equipment, may be the means of reducing the cost of steam, water, electricity, and other utilities in operating a refinery. An expenditure for new equipment can always be justified when by the use of that equipment the cost of any of the utility departments can be reduced so that the saving will offset the cost of the equipment within a reasonable time.

"Cost records are kept to ascertain the results of current operations and to control future operations, by having as a guide a record of past operations. The extra expense of keeping adequate cost records does not add materially to the cost of operating a refinery since it is but a small addition to the cost of general accounting records required to handle purchases, sales, payrolls, taxes and other items necessary to conduct the business and to comply with the many requirements of the various federal and state sales-tax, social-security, wage-and-hour and other laws. . . . .

"We have seen outstanding examples of well-managed companies, both refining and marketing, which have continued to make profits while others struggle to remain in business. The general trend has been toward fewer and larger refineries, but the efficiently operated small refinery, conveniently located to serve a limited marketing territory, still has a place in the industry. Such a refinery must have available at a reasonable transportation cost an adequate supply of suitable grades of crude oil and a market for its products in which it can compete without being at a disadvantage in transportation costs for its finished products. Above all, it must be in the hands of capable men. The success of your company and mine depends on the ability of the management to coordinate the efforts of each step in the operation of manufacturing and selling so as to obtain the most satisfactory results for the company as a whole."

Technical Papers

Following Mr. Votrian's discussion, two papers of a more technical nature were presented. The general interest and timeliness of the subjects were evidenced by the prolonged discussion which came from the floor.

The first was presented by H. W. Ortendahl of Socony-Vacuum Oil Co., Inc., who with Dr. J. S. Carey of E. B. Badger & Sons Co., prepared the paper on the subject "Economic Factors in Catalytic Cracking." This paper will appear in The Oil and Gas Journal in its entirety within the next 2 weeks and will include detailed operating and cost data based upon Houdry catalytic cracking experience. These data emphasize the practicability of the process in producing high-octane fighting-grade aviation fuels, especially the 100-octane fuel which the authors say is being done on a large scale by blending with the base stock no more than 35 per cent alkylate and 3 cc. of lead per gallon.

The final paper was that presented by Dr. M. W. Conn of Perco, Inc., who discussed "Catalytic Desulfurization." It also will be published in its entirety within the next 2 weeks, including a flow chart in which the relative position and functions of the catalyst towers, heater and caustic washing equipment will be correlated to produce motor fuels of higher octane value at a lesser cost. The author's experience with the process has pointed to a substantial reduction in normal lead requirements through the use of processes which remove sulfur-bearing compounds. Two commercial units provided some of the basic data and other comments were equally conclusive since they were based upon semicommercial or pilot-plant operations.

Industry Seeks Definition of Part In National Defense Program

GEORGE A. HILL, JR.

These extracts are taken from an address by George A. Hill, president, Houston Oil Co., before the East Texas Chapter, American Petroleum Institute, at Kilgore, Tex., October 9. In his address, Mr. Hill tells what he believes the industry should strive for in correlating its efforts with those of the National Defense Advisory Commission. In a 13-point program he urges: (1) business as usual; (2) prepare for increased aviation-fuel production; (3) enlarge transportation facilities; (4) release marine facilities; (5) investigate underground storage; (6) aid in toluene manufacture; (7) speed up synthetic rubber production; (8) allocate contracts intelligently; (9) aid employes in military service; (10) locate new oil reserves; (11) employ research facilities to fullest extent; (12) steer clear of a course that will lead toward government control, and (13) continue its efficient operation under present organization, without diverstiture of the essential elements to its integrated production.

WE of the oil industry, devoted as we are to freedom of initiative, free competitive enterprise, and free American institutions applaud, with one voice, the affirmance by the president of the national will and purpose to preserve, and to protect, against all aggressors, "our American way of life with our individual and national freedom."

We subscribe, utterly and completely, to this guiding declaration, and seek its further definition as applied to the oil industry.

Fortunately for all, the policy of the Government, after adequate study and deliberation, has been given precise definition. The National Defense Advisory Commission, with its patriotic, highly qualified, and distinguished personnel, on August 31, and September 6, 1940, respectively, unanimously agreed to and adopted 12 general principles governing national-defense contracts and also fair-labor-standard requirements.

The policies and principles chart, in detail, the course and direction for free, vigorous, dynamic, and patriotic American industry to follow in yielding the highest degree of voluntary cooperation and coordinated effort with the administration's program of national defense.

To these policies and principles, I am confident, the oil industry cheerfully subscribes, wholeheartedly and without cavil or dissent.

Thirteen-Point Program

Translated into actual and effective performance, what does adherence to these principles by the oil industry involve in terms of voluntary cooperation and coordinated effort?

First.—In lending full and effective cooperation to national defense, the industry should recognize the necessity of conducting its "business as usual" along the general lines of the status quo, with such deviations and modifications as are deemed to be useful and essential in the promotion of national defense.

Second.—The industry should increase production of 100-octane aviation gasoline and be in a position to supply aviation gasoline, motor fuel and other petroleum products at the points and in the quantities desired, for the safe and adequate storage of reserve petroleum products, by the methods, and in the manner, desired by the military authorities.

Third.—Methods of transportation, such as gasoline pipe lines, should be built to the East Coast and to the areas, and with the capacities, that will afford the safe, prompt, and adequate dispatch of such products, with the elimination, as far as possible, of the military hazards involved in the unnecessary use of railroad rolling stock and tankers and marine equipment constituting more vulnerable military objectives to enemy forces.

Fourth.—The effort should be made to release, as far as possible, the burden of supply that might be excessively laid upon marine equipment that in time of war, or other national emergency, might be usefully devoted to more direct or serviceable naval use.

Fifth.—The industry should employ its research facilities, and its ingenuity in relation to the general effort to aid in the establishment of underground storage at strategic localities, of aviation and other gasoline required in the government plan of national defense.

Sixth.—The industry should aid in the manufacture of toluene in order to increase American production of TNT and other petroleum products useful in the munitions preparedness program.

Seventh.—The industry should aid national defense to the degree that it can (considering the present absence of plants, and the long time required to get into production) in the manufacture of synthetic rubber from petroleum gas and its byproducts, to the extent that such will, in a practical way, help to serve the requirements of the military establishment of the United States and of American industry.

Eighth.—The allocation by the Government of contracts, for the purposes of national preparedness and defense, to various units in the industry should be so accommodated and adjusted in relation to normal operations that normal economic relationships will not be distorted and the general and normal conduct of the industry will be adjusted to the special situations thereby created.

Ninth.—To aid in every helpful, sympathetic and practical way employes enlisting in the various branches of military services of the United States.

Tenth.—In order that the presently developed underground supply of proven oil reserves, amounting to 18,500,000,000 bbl., may not be diminished, a reasonable program of exploration, by the use of wildcat wells and the various arts employed in the finding of new oil reserves, should be continued.

Eleventh.—The industry should employ to the fullest extent all of its appropriate research facilities for the development and adaptation of any product or byproduct of the industry for either defensive or offensive purposes.

Twelfth.—The maximum of service to the national defense and to preparedness can be rendered without resort, at this time, to experimentation and to the development and employment of new controls. During the past 7 years, and for a number of years anterior thereto, there has evolved a body of law under our constitutional system which is in the furtherance of conservation, the elimination of waste, the accommodation of production to market demand, the denial to interstate and foreign markets of illegal production, the scientific determination of national consumptive requirements, the translation into workable relationships of the various state regulatory authorities, the Interstate Compact Commission, the Bureau of Mines, and the authorities administering the Connally Act, all of which have, through actual experience, demonstrated their utility and worth and have become reasonably efficient processes. These laws, and the cooperation of the industry, have served to maintain the integrity, continuity, and serviceability of this great, free, American enterprise, which is susceptible of prompt, adequate and effective mobilization for all of the essential requirements of national defense, without the necessity of the imposition of any authoritarian control. There is no phase of service, to the most exact requirements of national defense and national preparedness, useful for the quick, faithful, efficient, and patriotic discharge of the highest obligations of citizenship, that cannot be supplied through the voluntary service and voluntary cooperation of the oil industry under the leadership of the president of the United States of America and his National Defense Advisory Commission.

Thirteenth.—Unless otherwise restrained, the industry should continue its efficient operation at low cost under its present organization, without divestiture of the essential elements to its integrated operation. Just as clearly and as definitely as the Supreme Court of the United States has recognized that many years of experience and evolution in the oil industry have demonstrated that the integration of various units in the industry has become "a facility of industrial progress" it is recognized that the evolution of the War Industries Board (1917-18) was the continuing demonstration that American industry needed to be integrated with the war and preparedness program of the United States during the period of that emergency, in order to achieve the maximum benefits of coordinated effort. However, the oil industry during 1917 and 1918 was, in all important respects, as related to the war effort, differently circumstanced from its present highly developed status.

Industry's Record

In the last 10 years the industry has drilled 212,379 wells; greatly increased steel storage facilities; accumulated 18,500,000,000 bbl. of proven recoverable reserves; maintained a high rate of improvement in refining technique, with corresponding plant improvements; constructed count-

(Continued on Page 46)

ANTITRUST SUIT AT BAR OF PRESS OPINION

CHICAGO DAILY TRIBUNE

The Government has brought pressure to bear upon coal and petroleum, two closely related and competing industries. Action by the Department of the Interior affected coal. Action by the Department of Justice affected petroleum.

The oil companies are being prosecuted for doing what the Government has compelled the coal companies to do.

The ability of the New Deal to ride off in opposite directions at the same time was never better illustrated than when one department boosted the price of coal and another department moved to reduce the price of oil.

That is just what the oil companies have been doing—acting together to prevent "competitive exploitation." The attorney general approves of the results of their cooperation and, therefore, sues to compel them to stop it.

CHICAGO JOURNAL OF COMMERCE

In the majority opinion in the Madison oil case, U. S. Supreme Court Justice Douglas branded as unlawful "any combination which attempts to tamper with prices," adding that there can be no legal justification for a combination to manipulate prices even though the prices be reasonable and designed to afford economic relief to an ailing industry. In other words, the so-called "rule of reason" by which the Government had been guided for nearly 30 years in its antitrust prosecutions did not run in the Madison case.

Presumably, it will not run in the present case. Yet by grace of a certain type of relief legislation, the Bituminous Coal Commission does no violence to the rule of reason when it fixes the price of soft coal in order to help the coal industry.

ST. LOUIS POST-DISPATCH

With the advent of the national-defense program those opposed to the dynamic assistant attorney general's program believed they had at last found a way of stopping it. Once again, they thought, special interests could be saved by invoking high patriotism. Trust-busting, they preached, would hamper preparedness. . . . It was in connection with this oil litigation, particularly, that the cry of patriotism was raised. . . . Mr. Arnold is going to make every effort to put an end to noncompetitive crude-oil prices and the maintenance of exorbitant and uniform price differentials. . . . Success for him will mean lower gasoline prices to the consumer and therefore to the Government. Thus, prosecution of the cases will be a contribution to the national defense.

WICHITA DAILY TIMES

The Post-Dispatch overlooks the interests of production and royalty owners whose welfare depends largely on orderly marketing of oil. No one would contend that the oil industry is devoid of monopolistic practices; but showing that these practices are injurious to the Government or to the public is quite another matter.

There is the suspicion that the Government is trying, not so much to combat monopoly, as to develop sentiment for federal control of the oil industry. We doubt that the suit would have been filed if there were not under way the effort, supported by administration members, to establish such control. The Post-Dispatch overlooks that factor also.

WALL STREET JOURNAL

This suit opens an imposing vista of litigation. The allegations in the complaint are broad enough to promise an investigation of facts in the industry on a tremendous scale. Having in mind the keenness of the competition of the large companies in the distributing of products to consumers, establishment of a conspiracy among them to eliminate small competitors will be no simple matter even presupposing that the allegations of the complaint are all true. The charge concerning railroad rates should interest the Interstate Commerce Commission which has complete control of these as also of service conditions and practices.

TULSA WORLD

The Government appears to characterize the efforts made at conservation and orderly trade as conspiracy in restraint of trade. That is a violent assumption.

It is not possible for people who know anything particular about the oil fields and the history of the business to view with complacency the proposal to substitute government for business in the operation and control of the oil industry. We do not think many people are deceived by the ponderous terms of this lawsuit.

NEW YORK JOURNAL OF COMMERCE

To achieve that measure of stability which Secretary Ickes wants the industry to attain, its machinery for self-regulation must be strengthened rather than weakened. The Interstate Oil Compact Commission, which now meets four times a year, should convene more frequently, and should foster closer relations between state regulatory bodies and the industry. The American Petroleum Institute, which now provides the industry with a valuable statistical service, should be expanded, rather than disbanded as the Government's complaint asks. In particular, the Oil Compact Commission should create a permanent research organization that would study production and consumption trends to keep supply and demand in better balance, so as to make unnecessary rigid federal control such as Mr. Ickes favors.

ARKANSAS GAZETTE

Lower prices for gasoline and fuel oil are declared by the Justice Department to be the primary ends sought in the antitrust suit it is bringing with allegations that range from conspiracy to maintain noncompetitive prices for crude oil to agreement on "uniform and exorbitant price differentials" between various grades of gasoline.

Here in Arkansas the combined state and federal levies amount to 8 cents per gallon, a full half or even more of the total price of the cheaper grades and more than one-third of the price of the premium grades. The same Government which seeks, among other ends, to lower gasoline prices to consumers by prosecuting an alleged combination in restraint of trade has within recent months increased its own nation-wide gasoline tax by 50 per cent in order to raise additional funds for national defense.

DALLAS NEWS

Some aspects of the antitrust suit which Specialist Thurman Arnold is determined to press against major oil companies must stir speculation. The inclusion of the American Petroleum Institute in the suit is one of these. Mr. Arnold moves to dissolve the Institute, the research organization of the industry and open to all of its branches. If the prosecution wins its point, what has it dissolved and what justification would remain for preventing the organization of a new institute?

Presumably the Arnold suit regards the current Institute as a clearing house where the oil malefactors gather and fix prices. It will be difficult to assign that character to an organization which collects and furnishes to the industry statistics on which price policies may be based.

INDUSTRY THROWS UP ITS GUARD . .

J. HOWARD PEW
President, Sun Oil Co.

I only know what the newspapers and the attorney general's so-called press release have made public about this suit.

The attorney general is making a deliberate effort to convict these companies in the eyes of the public. It is obvious that the real purpose of this action at this time is political and in line with the known policy of the administration to create hostility toward business.

Precisely how lower prices are to be effected through raising the prices for crude oil and insuring profits to the least efficient refiners, is not explained, and is certainly not apparent. The fact is that the Government's own index of commodity prices shows that petroleum products have for many years steadily fallen in price, and now stand at the bottom of the price index as compared to all other commodity groups.

Everybody knows the industry's long record of ever-decreasing prices and improving qualities, and its high wages and steady employment. This is certainly evidence of the accounting of the industry's stewardship to the American people.

BUELL JONES
General Counsel, Standard Oil Co. (Indiana)

While the company has not as yet been served, nor has it had an opportunity to examine the pleadings, it is believed from advance information released by the Department of Justice that the action at Hammond, Ind., involves only a question of law—whether payment of dividends by a subsidiary to its parent company constitutes a rebate of the sort forbidden by the Elkins Act.

Stanolind Pipe Line Co. has been for years a fully owned subsidiary of Standard of Indiana. It constitutes merely a plant facility for transporting crude oil from oil fields to refineries. There are consequently no profits in the usual meaning of the word. Standard of Indiana has paid transportation charges at rates filed with the Interstate Commerce Commission.

If the pipe-line company were organized as a department of the Standard of Indiana, there would be no question of rebate, because there would be no dividends. If dividends paid under the circumstances are found to be a rebate, it will be a very new and revolutionary construction of the Elkins Act.

I. P. A. A. Will Hear Report of Committee of 29

DALLAS, Tex., Oct. 8.—Report of the special study committee of 29, which will evolve in the form of a recommended program for 1941, will feature the annual meeting of the Independent Petroleum Association of America here October 16, 17 and 18. Headquarters and most of the meetings will be in the Adolphus Hotel.

Before final presentation of the report for consideration by the membership, studies of the committee of 29 will be analyzed and placed in completed form by the resolutions committee. W. A. Moncrief, Fort Worth, Tex., independent operator, is chairman of the committee of 29 and will head the body on resolutions. The resolutions committee this year will consist of the committee of 29 and about as many more appointees.

Support of the broadened program by the Interstate Oil Compact Commission was voted at the last of three meetings by the committee of 29 which gathered in Fort Worth late last month. Approval of the membership will be required to elevate the committee's recommendations to the status of association objectives but it is generally believed that a more vigorous program for the interstate compact will be one of the cardinal points.

Imports, Compact and T.N.E.C.

Three major subjects formed the agenda for study by Mr. Moncrief's committee. A subcommittee was designated to report on imports and this group's findings will attract much interest at the Dallas meeting. Another subcommittee is to report on the interstate compact and the state oil and gas conservation commissions. A third group analyzed the testimony taken on petroleum by the Temporary National Economic Committee and will report its findings. General sessions of the annual meeting start at 9 a.m. October 17 preceded by an innovation in association conventions consisting of a party and buffet supper in honor of the young oil men at 5 p.m., October 16. Veteran members of the industry have been given special recognition on numerous occasions. The independent producers who have recently entered the business will be specially entertained this time.

C. A. Lester, of Dallas, chairman of the general arrangements committee, will open the general program followed by Frank Buttram, of Oklahoma City, who will deliver the president's address.

Rep. Wesley E. Disney, of Tulsa, will address the Thursday noon luncheon on "Our Changing Economy." The nominating committee, headed by Charles F. Roeser, Fort Worth, will report Friday morning. The annual banquet Friday night concluding the meeting will be addressed by Congressman Hatton W. Sumners of Dallas.

Committee reports will be presented Thursday afternoon. W. A. Delaney, Jr., Ada, Okla., will report for the tax-policy committee, of which he is chairman. Russell B. Brown, I.P.A.A. general counsel, will speak on "Petroleum and the National Government." Burdette Blue, Bartlesville, Okla., as chairman of the public relations committee, will speak on "The Oil Industry as News." One of the outstanding papers prepared for the meeting is by A. I. Levorsen, of Tulsa, former president of the A.A.P.G., who will go ahead of current practices in a talk on "Geological Outlook for Future Oil Discovery."

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National Stripper Well Association To Hear Three Addresses

DALLAS, Tex., Oct. 8.—Three addresses of practical interest to operators of the small wells of the nation, will feature the noon-luncheon portion of the National Stripper Well Association program, in Dallas, October 15. The morning session, starting at 9:30 o'clock, will include the opening remarks of Jake L. Hamon, Dallas independent oil producer, who is president of the association, and reports by Harold B. Fell, Ardmore, Okla., executive vice president, and Howard J. Whitehill, Tulsa, secretary-treasurer.

The luncheon meeting will begin at 12:15 p.m., and the first speaker will be D. G. Gray, executive vice president of the North Texas Oil and Gas Association, Wichita Falls, Tex., who will discuss the "Effect of Selective Purchasing on Stripper Wells."

"Water-Flooding Development in the Kansas-Oklahoma Area," is the subject of D. G. Powell, executive manager of the Oklahoma Stripper Well Association, Tulsa.

Lee Mulvihill, executive secretary, Illinois-Indiana Petroleum Association, Robinson, Ill., will discuss "Stripper-Well Conditions in Illinois."

Following the business session in the afternoon, when reports of committees will be received and new officers elected, President Hamon will be host at a cocktail party at 5 o'clock p.m.

The meeting will precede by one day the opening of the eleventh annual meeting of the Independent Petroleum Association of America, which will be held in the Adolphus Hotel, Dallas, October 16, 17, and 18. Many members of the I.P.A.A. are members of the stripper well organization and have arranged to attend both meetings.

Defeat Move to Halt Flow Of Mexican Oil

WASHINGTON, D. C., Oct. 7.—A move to halt the incoming flow of Mexican oil was defeated in the House last week when the Sumners bill was voted down by the close margin of 129 to 123.

Brought up under a special rule, the measure was discussed at great length. The bill, authorizing the president to exclude all property confiscated by any foreign government without just compensation, was denounced for giving the president wide powers which might involve us in war. Representative Sumners, emphasizing that the State and Justice Departments were not opposed to this legislation, warned that Mexican oil imports are imperiling the solvency of every oil producer in this country.

Congressional criticism centered about the broad phraseology of the bill, and the all-inclusive manner in which it would apply to confiscated property in all parts of the world. Amendments to place customs authorities in charge of enforcement, to limit jurisdiction to expropriated property of American nationals, and to determine "just compensation" under the Wage and Hour Act were not accepted, but an amendment to restrict the term "confiscated property" was agreed to.

After a motion to recommit the bill to committee was defeated, the unfavorable vote was taken. With the demise of the Sumners bill, a milder form of the McCormack bill now bottled up in the House, passage of this type of legislation seems improbable at this session of Congress.

Pollution Suit Against East Texas Operators Continues

DALLAS, Tex.—The state's injunction suit to prevent pollution of the Neches River and its tributaries by salt water produced from East Texas wells was being argued before a jury here early this week after the first 4 days had been devoted to hearing testimony by state and defense witnesses. The suit was originally filed against 150 operators in the East Texas field, but this number was reduced to 10 by the other companies agreeing to halt dumping salt water into the streams. The suit is being held in the 116th District Court with Judge John A. Rawlins presiding.

The suit was opened on Wednesday by James A. Butts, district engineer for the Railroad Commission in the field, testifying as to general conditions in East Texas. He stated that approximately 4,500 of the 25,900 wells are producing 175,000 bbl. of salt water daily. Defense attorneys on Saturday, however, introduced records of the commission to show that only 1,475 of the 4,500 wells are located on the watershed of the river.

That salt water is finding its way into the various tributaries of the Neches directly, by seepage or from underground springs that have been contaminated, was testified by W. O. George of the U.S.G.S., Fort Worth. Salt content of the streams varies from 1,000 p.p.m. at the headwaters to 30,000 or more at the mouths of the creeks, he said. Later testimony showed that the cities of Port Arthur and Port Neches, as well as refineries on the lower end of the river, had to discontinue pumping from the river on occasions last year due to its salinity.

Thirteen companies were involved when the case was started, but Judge Rawlins was temporarily enjoined from entering any order or hearing any further testimony against the Barnett Petroleum Co. by federal District Judge Randolph Bryant of Tyler on Thursday. The Barnett company is in process of reorganization in the East Texas federal court. Two other companies were eliminated, Farrell & Co. and Iowa-Payne Oil Co., both of which posted bonds that they will abide by an agreement in which 137 other companies have promised to halt dumping of salt water into the river.

FRANK BUTTRAM
President, I.P.A.A.

W. A. MONCRIEF
Chairman, Committee of 29

STATE CAPITALS...

KANSAS

A REDUCTION OF 1,550 BBL. in the daily crude-oil allowable during October for the state was ordered last Saturday by Theo A. Morgan, conservation director of the Kansas Corporation Commission, in setting the allowable at 188,450 bbl. The October allowable compares with the Bureau of Mines estimated market-demand figure of 178,700 bbl., and a September allowable of 190,000 bbl. Mr. Morgan stated the October allowable comprised 182,450 bbl. allotted to current wells with a reservation of 6,000 bbl. daily for new wells brought in during the month; the September allowable allotted only 4,000 bbl. for new wells. At the recent market-demand hearing Mr. Morgan testified that purchaser nominations for the month totaled 182,568 bbl. daily, but that some companies "reserved the right to increase purchases."

TEXAS

PROPOSAL FOR A RAILROAD COMMISSION rule governing the deviation from vertical allowed to an oil well is expected by many Texas oil men to be dropped. They believe the proposed rule has too many ramifications, would further complicate the already complicated oil-proration setup. A hearing was held recently for hearing testimony on the subject after the commission received a complaint from an East Texas operator. This operator complained that his neighbor, near the edge of the field, had pointed a well at his property.

Oil attorneys say that under Texas law, the adjoining lease owner has no legal recourse against another operator draining his land of oil. His only recourse is "self help," that is, he can drill an offset. But to set fixed rules governing the deviation of wells—unintentional deviations, and all deviations would be unintentional if challenged—would raise numerous difficulties. In many of the salt-dome fields on the Gulf Coast the drilling operators claim an absolutely vertical well is impossible to drill.

CHAIRMAN LON A. SMITH of the Texas Railroad Commission on Saturday announced that no decision will be made on either a reduction of the state's allowable or a state-wide proration hearing until later this month. Both Mr. Smith and Commissioner E. O. Thompson have stated a reduction in allowable may be necessary, while Commissioner Jerry Sadler has withheld comment. Chairman Smith has taken the view that the present allowable is over the market demand for Texas crude, which will necessitate that it be curtailed within a short time as the industry is entering the season of slackening demand.

The Oil and Gas Division of the commission calculated the daily average allowable at the start of October was 1,389,534 bbl., a gain of 12,741 bbl. from the previous week. As the Bureau of Mines places market demand for Texas crude at 1,305,200 bbl. during October, allowing for a 2½ per cent underproduction of allowables still places Texas' allowable 49,500 bbl. above the bureau's figure. The gain in allowable over the previous week was due largely to the fact that there will be one more producing day in October; i.e., the number of shutdowns remains at nine, but as October has 31 days as compared to September's 30, the average daily allowable is increased by 1 day's production. Four fields, however, received increases on Saturday, and the allowable of one was cut with a net gain of 460 bbl.

The South View field of Taylor County was raised from 114 to 200 bbl. and exempt from shutdowns, increasing the permissible 120 bbl. daily. In the Noelke field of Crockett County the basic was raised from 40 to 200 bbl., increasing daily average 115 bbl. The Corpus Christi field of Nueces County was exempt from shutdowns, raising daily average 265 bbl. In the Knox pool, Young County, the basic was raised from 793 to 1,091 bbl., increasing daily average 235 bbl.

Allowable increases of about 1,400 bbl. daily also were granted three fields Monday by the commission. Largest of the increases was a boost from 3,058 to 4,170 bbl. for the Henderson field in Winkler County, giving it a net gain of about 800 bbl. after deductions for shutdowns. The Orange Grove field in Jim Wells County was raised from 1,612 to 1,824 bbl., giving it a net boost of about 150 bbl. Exemptions for the remaining shutdowns required during the term of the present state order were approved for the Shipley pool in Ward County. With a basic quota of 1,436 bbl., the exemption will increase its daily average flow about 417 bbl.

COLORADO

THE FEDERAL POWER COMMISSION has set October 28 at Denver for the beginning of hearings on the application of the city and county of Denver and the Public Service Commission of Wyoming for lower gas rates on natural gas transported into Colorado and Wyoming from the Texas Panhandle. Involved are the gate rates charged the Public Service Co. of Colorado by the Colorado Interstate Gas Co. and rates charged by the Colorado-Wyoming Gas Co. and affiliated interests. The applications were filed late in 1938 and were protested by the companies on the ground that the power commission lacked jurisdiction. Since then the question has been carried through the courts up to the Circuit Court of Appeals and the commission was sustained. In the meantime the commission has had experts in the field investigating the physical property and accounts of the various companies concerned.

OIL-STATE GOVERNOR . . .

GOV. KEEN JOHNSON

As one of the few remaining "poor-man" oil states, Kentucky's problems differ from those of other producing areas. Wells are normally small and shallow, but in most areas have a long life. The state's main problems are markets and transportation as many of the oil fields are in the hilly country

LOUISIANA

THE DEPARTMENT OF CONSERVATION last week ordered that under the authority granted it by Act 157 of the 1940 legislature, all operators in Louisiana file before October 20 a list of storage facilities, together with their location, number of tanks, capacity, etc., which are being used for the handling of crude oil. The order applies only to lease storage.

CALIFORNIA

THE CONSERVATION COMMITTEE of California Oil Producers, official curtailment group, has reached the end of the rope as far as the allowable daily production of crude oil is concerned and is now faced with the necessity of securing more effective compliance. The allotment could be reduced slightly but if conditions remain as they are the state's allotment will remain at or around 571,000 bbl. daily. Actual production averaged 611,856 bbl. per day during September, an excess of 40,856 bbl. per day. This indicates there is considerable room for improvement. A resistance point has been reached with respect to the allotment of top wells and it is expected operators will object to any further reduction. Present allotment for top wells during October is 153 bbl. and it is probable that the top allowable may be reduced to 150 bbl. per day but not below that amount. When the present method of uniform method of allotment began in June of last year the top was 250 bbl. per day for those wells in the highest brackets. It has been consistently reduced month by month until the present resistance point has been reached. The administrator for the Central Committee is deeply concerned with the excess and has been working incessantly in an effort to eliminate the overages. It is his opinion that there should be a buyer for every barrel of crude oil produced under curtailment and with this end in view he has been endeavoring to reduce the overage at Kettleman Hills as this will reduce resistance in other fields.

MICHIGAN

PRODUCTION PRORATION was eliminated October 8 in the South Overisel, New Salem and Walker oil fields by P. J. Hoffmaster, Michigan supervisor of wells. Independent engineering and statistical studies by the Oil Advisory Board indicated no further benefits would be derived from continuing the allowables, Mr. Hoffmaster said. He added that operators in the three western Michigan fields will not be required to file October production reports. The fields went under proration nearly 18 months ago.

NEW MEXICO

NEW MEXICO'S DAILY ALLOWABLE during October has been set at 104,500 bbl. daily, equal to the Bureau of Mines recommended production figure, State Land Commissioner Frank Worden announced last week. The October allowable represents an increase of 4,200 bbl. over the September daily figure, which was placed 5,000 bbl. under the Bureau of Mines estimated market-demand figure of 100,300 bbl.

The OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

Published weekly by The Petroleum Publishing Company at Tulsa, Oklahoma

Let's Face Facts

In a short time the oil industry will be the object of fierce denunciation, with full publicity, by government attorneys. It can prepare for that event by considering its duties and obligations and the way in which it is carrying them out.

Stated simply, the oil industry has three tasks of approximately equal importance. These are (1) to develop the country's petroleum resources so as to satisfy current demand and, at the same time, to have in sight sufficient reserves to satisfy future demands; (2) to distribute petroleum products to the public at a reasonable price and (3) so to organize its distributional facilities that the public may be served with a minimum of inconvenience.

At the close of the first World War fears were expressed regarding our reserves of petroleum. We had then an estimated 6 years' supply.

Today with an increase of more than 250 per cent in demand, we have 15 years' supply. These vast reserves were not discovered by government agencies but by the oil industry—majors, independents and amateurs alike.

The downward trend of gasoline prices is too well known to permit any reasonable claim that the oil industry is charging exorbitant prices for its products. Government, both state and federal, has added taxes totaling more than the refiners' gross return to the price of gasoline and the public pays them with hardly more than an occasional murmur. Now it is claimed that the refiner gets too much!

Supplying the consumer involves more than price. The nature and quality of the product must also be considered. No basic industry has had to meet so many changing demands as has the oil industry. It has more than kept abreast of these varying requirements.

The oil industry is in a position today to supply far more than the country's needs for glycerin, toluene and many similar products. Our dependence on foreign countries for rubber will cease as a result of the development of processes for making rubber from oil.

The Government did not develop these new products. It did not even push the oil industry into doing it. The industry's record of greatly improving its products with continually falling prices has been maintained often in spite of governmental restrictions.

In the matter of distribution, most qualified observers consider that the oil industry has done too good a job. Retail outlets for petroleum products are so numerous that the public's chief difficulty lies in deciding which of the multiplicity of service stations and other dispensaries it will patronize.

Even though the profits on marketing have almost completely disappeared, no other system of retail distribution gives such rapid and efficient service to the consumer. But now it appears that service stations should carry a number of different brands of gasoline. Otherwise each station constitutes a monopoly.

Are dealers in motor cars, tires, refrigerators and other commodities also supposed to handle their competitors' products? Should each publisher of periodicals put out a number of copies of competitive publications? Or, should everything be standardized under a government bureau so that it doesn't matter particularly where or what one buys?

The statement has been made that if fascism ever comes to America it will be in the guise of antifascism. So, too, if monopoly ever comes it will be governmental monopoly introduced in the guise of free and unhampered competition. It is rather ironic that one of the most fiercely competitive of all industries should be attacked as a monopoly by the Department of Justice. Or do words not mean what they used to?

Reed Named President of West Virginia Oil and Natural Gas Association

CHARLESTON, W. Va.—Charles C. Reed, of Clarksburg, W. Va., general superintendent of the Hope Natural Gas Co., was elected president of the West Virginia Oil and Natural Gas Association at the annual convention here. He succeeds Harry A. Wallace, Jr., of Charleston, of the United Fuel Gas Co., who was named to a 3-year term on the board of directors.

J. G. Ward, of Parkersburg, vice president in charge of the oil and gas properties of the South Penn Oil Co., was elected vice president and Edwin Robinson, of Fairmont, was reelected secretary-treasurer.

Named to the board of directors were: Wallace, J. R. Hornor, Clarksburg, G. L. Hinerman of Weston, for 3-year terms; Gerald E. Wilson, Wheeling and I. G. Grettum, Charleston, for 2-year terms and Wallace B. Gribble, of Clarksburg, for a 1-year term.

Thousands of persons attended the oil and gas exhibit held in connection with the convention with all types of equipment used in oil and gas fields on display. The exhibits were formally opened when Gov. Homer A. Holt, of West Virginia, placed a drilling rig and compressor in operation and lighted a gas flame. The welcoming address was made by Mayor D. Boone Dawson, of Charleston. The response was made by Mr. Wallace.

At the Thursday session, John A. Clark, of Clarksburg, general superintendent of the Hope Natural Gas Co., told of plans for storing West Virginia gas in Cleveland after it had been compressed into a liquid. The process has been developed over a period of years, principally at the Hope's compressing station near Clendenin, W. Va., the gathering was told.

The association was urged to seek the aid of legislation for conservation of natural resources by John J. D. Preston, of the West Virginia Public Service Commission. He suggested that oil and gas producers police the industry to that end. Many wells now being drilled are unnecessary, he charged.

Speakers at the Wednesday session included U. S. Sen. M. M. Neely, of West Virginia; Silas W. Pickering, of the Carbide & Chemicals Corp., who spoke on "Plastic Chemistry and Products Derived From Oil and Gas Bases"; W. Chapman Revercomb, Charleston attorney, who spoke on "General Taxes Relating to the Oil and Gas Industries."

Ickes Denies Thompson Considered As Oil Coordinator

WASHINGTON, D. C., Oct. 8.—Disclaimer has been made by Secretary Ickes that Col. Ernest O. Thompson, Texas railroad commissioner, has been considered for appointment as coordinator of the petroleum industry to work out a plan for cooperative control.

Secretary Ickes denied the rumors regarding Colonel Thompson with some feeling at a press conference last week. He said he had not given any thought to the appointment to any position in the oil administration or to any other position having to do with the oil industry.

Secretary Ickes and Commissioner Thompson hold opposite views with respect to state and federal regulation of the oil industry.

Carter and Phillips Trade Oil-Producing Properties

TULSA.—Consummation of a trade between the Carter Oil Co. and the Phillips Petroleum Co., involving producing properties in the Burbank, Ramsey, and Bethel pools of Oklahoma; the Burrton, South Lorraine and Kraft pools of western Kansas; the Magnolia pool in Arkansas, and the Rodessa pool in Louisiana was announced today by the managements of the two companies. The purpose of the trade is to consolidate production in areas to better serve the manufacturing facilities of each company, or its affiliates.

The trade involves approximately 3,200 producing acres, 274 wells and approximately 5,000 bbl. per day of production. The transfer of properties will be effective as of October 1, 1940.

The Journal Presents A New Feature

A new service feature, designed especially to aid drilling contractors, operators and geologists, is presented in this issue of The Oil and Gas Journal following Page 88.

This feature consists of a cross-section based upon deep tests, a generalized stratigraphic column which will enable operators to locate horizons readily in new areas, a geological map of the region and a brief discussion of its development and potentialities.

The Oil and Gas Journal feels that the information presented in this series will be of invaluable aid to contractors and operating men in approximating drilling costs, conditions and the type and quantity of equipment required in the various areas.

The interest displayed in The Oil and Gas Journal's services on active fields, which are published at frequent intervals and as promptly as development justifies, has led to the belief that this new companion and supplemental information will be welcomed in the industry.

The logs, column and maps are printed in color and are standardized as to form and method of presentation. The service is especially printed on an insert so that it will be of maximum value to research and technical workers in the oil industry.

The initial insert of this new series deals with western South Dakota. The Allegan-Van Buren-Kent district of Michigan; Love, Marshall and Bryan counties of Oklahoma and the Eola-Ville Platte district of southern Louisiana will follow in that order.

A second series, dealing with other similarly interesting areas is now being prepared and will appear in subsequent issues of The Oil and Gas Journal.

DEATHS

IVAN F. WILSON, 45, employe of the Bradley Producing Co., of Bolivar, N. Y., died suddenly September 30. Death was caused by a heart attack. He was prominent in American Legion affairs and after serving two terms as commander of the Bolivar post, was installed as Allegany County commander just 2 weeks previously. He is survived by a son, his parents, a brother and a sister.

WILLIAM FRANKLIN PHILLIPS, 67, Venango County oil producer, died at his home at Pinoak, near Oil City, Pa., October 3. Mr. Phillips, who had been in ill health for several years, had followed the oil business in Pennsylvania and California. He was the third generation to drill on the Phillips farm and had recently completed a well. He leaves his widow, a daughter, two sons and a brother and two sisters.

D. FRANK FLEET, 57, independent operator of Dallas, Tex., died in a hospital in Sherman, Tex., of a heart disease on October 2. A native of Walnut Ridge, Ark., he came to Oklahoma in 1885. In 1903 he entered the banking business at Sasakwa, Okla., and in 1923 moved to Ada, Okla., where he organized the Fleetborn Oil Co. In 1936 he moved to Dallas after selling his large interests in the Seminole County area.

LEROY R. PIERCE, 64, pioneer driller and inventor of the Pierce spudding machine, died at his home in Tulsa after a 2-month illness. A native of Venango County, Pennsylvania, he was an operator in the Clintonville district for 14 years. Moving to the Mid-Continent he became well known throughout the area as a driller and for his spudder. He resided in Tulsa following 1930 where he remained active for several years.

LAWRENCE D. MESSNER, 53, treasurer of the Barnsdall Oil Corp., Tulsa, died of a heart attack on October 4 while on a hunting trip near Waterton, S. D. Hunting companions on the trip stated he had just bagged a pheasant when he collapsed. A native of Pennsylvania and a World War veteran, he came to Tulsa in 1910 and became affiliated with the Oklahoma Natural Gas Co. After the war he joined the Barnsdall company.

WILLIAM F. McHECHAN, 61, for many years connected with the Transcontinental Oil Co. and Ohio Oil Co., died at his home in Tulsa on October 5 following a 3-year illness. A native of Clairsville, Ohio, he attended Washington and Jefferson and Ohio State universities, and came to Tulsa in 1918. He became connected with the land department of Transcontinental, which was later merged with Ohio.

HARRY HOLMES, 57, vice president of Quintana Oil Co. and attorney of Houston, Tex., died early Saturday, October 5, in a Houston hospital following an illness of about 1 month. He was a native of Jasper County, Texas, and resided in Houston for 32 years.

BUD HENRY HENINGTON, 47, drilling superintendent for Byrd-Frost Oil Co., Houston, Tex., died of a heart attack October 3 at Mobile, Ala. Before becoming associated with Byrd-Frost company he was drilling superintendent on the Gulf Coast for Pure Oil Co. for 14 years. He was born at Lake Charles, La., and early in life started work in the oil fields. During the World War he served in the Marine aviation division. He is survived by his widow, his mother, two sons and a brother.

Judicial Review Voted by Senate

WASHINGTON, D. C., Oct. 7.—The Senate voted this week to provide judicial review for cases involving oil and gas deposits.

At present the General Land Office decides cases to determine the validity of placer mining claims for oil and gas deposits on the public domain, authorized by the Mineral Leasing Act of 1920. Since the Government is often a party to these cases, the Department of the Interior recommended that a court be authorized to act as adjudicator. By the terms of the bill the Court of Appeals of the District of Columbia is given jurisdiction.

THE MARKETS*

CRUDE OIL: The depressed condition of the export crude market was made responsible for a reduction on high-gravity oil produced in the Saxet field, Nueces County, Texas. The reduction applied only to oil above 28° gravity. Crude-oil production in Texas generally exceeding recommendations of the Bureau of Mines is the cause of growing concern. Demand for crude in most fields appears to be on a firm foundation. Competition for well connections is active in most areas indicating that purchasers are unwilling to retrench their supply positions.

REFINERY: Refinery-gasoline prices in most districts are soft. The Mid-Continent felt the first impact of dwindling autumn demand this week. The high side of tank car prices has been lowered an eighth of a cent in some quarters. Demand for all grades of fuel oil has developed more definitely in the past few days. Prices are firm to strong in most fuel-oil consuming districts.

TANK-WAGON AND POSTED DEALER: Changes reported throughout the country this week were held to a minimum after rather general reductions were made late in September in the eastern part of the United States.

FINANCIAL: Oil securities fluctuated over a narrow range. Average of 30 representative stocks for the week ended October 5: High, 22.03; low, 21.24; close, 21.69. Week ended September 28: High, 22.37; low, 21.37; close, 21.44.

*Detailed information in Market Section.

80 STRINGS CEMENTED—AND NOT A HITCH..

HOW'S THAT!

▶ Crew working with Unaflo Oil Well Cement on the 80th string in this deep, high-pressure Louisiana field. Right through these 80 consecutive cementing operations, they've had "absolutely no cementing trouble," thanks to Unaflo.

"DOWN here in southern Louisiana, we sure are gettin' scientific. Why, it's got so now we drill and cement these 9,000-ft. holes just like clockwork.

"Why have we been clicking along so smoothly? They say one of the reasons is that we've got rid of cementing troubles by using this Unaflo cement. And that makes sense to me. You see, this is the 80th string in a row we've cemented with Unaflo—and not a hitch!"

In this Louisiana field the drilling company used 550-750 sacks of Unaflo Oil Well cement on each of the 80 oil strings so far cemented. On each well they also used 750 sacks of Universal Atlas Portland Cement on the surface pipe, rig foundations and cellars.

If you, too, want to click along like clockwork and protect your well investment take a tip from this Louisiana field and use Unaflo, the easy-flowing, hard-setting oil well cement with the retarded set. Write today on your business letterhead for "Oil Well Cementing Guide," a new booklet on using Unaflo. Address nearest office of Universal Atlas Cement Co. (United States Steel Corporation Subsidiary), Amicable Building, Waco; Tulsa; Oklahoma City; Kansas City.

USE ATLAS HIGH-EARLY FOR FAST CEMENTING!

● *Here's the secret* of speeding up surface cementing and saving money on rig time. Atlas High-Early gains strength several times faster than regular portland cement. Use it for surface and conductor pipe and also for rig foundations and cellars. Try it for yourself—and see.

DG-H-10

UNIVERSAL ATLAS OIL WELL CEMENTS

International

France . .

French Refining Industry Completely Incapacitated

NONE of the 18 refineries in France is capable of operating at original capacity or flexibility. With exception of possibly one or two plants the French refining industry is completely incapacitated.

In the early stages of the French invasion German bombers meticulously avoided attacks on the largest and most complete refineries on the northern coast of France including the following:

Compagnie Francaise de Raffinage, Gonfreville, capacity 36,000 bbl.; Standard Francaise des Petroles, Port Jerome, capacity 24,000 bbl., and S. A. des Petroles Jupiter, Rouen, capacity 15,000 bbl.

Before France sued for peace, however, military authorities not only destroyed all possible stocks but, detailed information now reaching this country indicates, plant facilities were decommissioned to the extent that almost complete rebuilding will be necessary.

The effort to rehabilitate at least one refinery in the unoccupied section of France is being pressed with increasing vigor. Materials on order for the refinery of Compaigne des Produits Chimiques et Raffineries de Berre, in the interior of France, are now covered by definite shipping instructions. American manufacturers are unable to prosecute the orders, even though payment in cash upon delivery at New York is promised, because of the embargo on equipment that would facilitate production of aviation gasoline in foreign countries. Furthermore, there is extreme doubt that delivery of the equipment could be fulfilled since it would have to pass the British blockade in reaching any French port.

Reports reaching this country indicate that one of the first uses of smoke circles discharged at low altitudes by fast German pursuit planes to mark targets for the high-flying bombers was against refineries in northern France.

The southern French refineries were bombed by German planes reaching the country from the Mediterranean, a route that required unmolested passage over Italy long before that country became an active combatant. Reports are that German bombers surprised the antiaircraft units guarding the southern French refineries and were thus enabled to drop explosives from low altitudes with a proportionate improvement in accuracy and destruction. Personnel of antiaircraft batteries positioned around refineries in South France was on extended and temporary leave when the attack occurred. Authorities felt secure because of distance separating them from the actual line of combat which at that time was 40 or 50 miles north of Paris.

At the start of the war there were 18 refineries in France with combined crude-oil capacity of 151,550 bbl. daily. The French refineries were among the most modern in Europe. Equipment included several of the more recently developed commercial processes.

Protection for vital war supplies, including particular attention to petroleum, was started in Germany in 1934. Beginning then and continuing up to the outbreak of war Germany constructed all pump stations, pipe lines and storage facilities below ground. This protection had not been extended to refineries. The three largest refineries in Germany are open targets, according to engineers who have worked on plant installations within recent years. The vulnerability of German refineries to air attacks gives more credence to the claims of extensive damage made by the British air force.

The largest refinery in Germany is located on an island on the coast near Bremen. The refinery and storage facilities occupy almost the entire surface of the island and the combination constitutes a near-perfect aerial target. During the early part of this year the Bremen refinery was processing the entire output from German fields amounting then to approximately 2,500 bbl. daily. Only 25 per cent capacity of the large Bremen refinery was used in processing the entire indigenous crude production of Germany.

Mexico . .

Oil Output Shows Small Overall Gain

INCREASES in crude production from South Tampico and the Poza Rica fields caused a small overall gain in Mexico's oil output in July. Petroleos Mexicanos, the government oil agency, reported July crude-oil production at 3,969,411 bbl., a daily average of 128,046 bbl. In June the total crude production was 3,808,967 bbl., a daily average of 126,966 bbl. North Tampico and the isthmus districts show a decline in June production. More than 82 per cent of the Mexican nation's entire crude-oil production is under control of Petroleos Mexicanos. Administracion General del Petroleo Nacional has 13 per cent of the total output and independent companies whose properties were not expropriated in 1938 or by subsequent action have approximately 5 per cent.

The June and July production for the major districts is shown below (production in barrels):

District—	July	June
North Tampico	428,940	464,756
South Tampico	658,953	565,490
Poza Rica	2,410,322	2,306,342
Isthmus fields	471,196	472,379
Total	3,969,411	3,808,967

Denmark . .

Gasoline Restriction Brings Ingenious Substitute Fuels

THE fuel situation is so critical in Denmark at present that limitations are even being placed on the number of permits granted to operators of motor vehicles equipped with wood-gas generating equipment.

Approximately 3,000 trucks are now operating on wood gas, but the Danish gasoline-restriction board has received applications from a number of truck owners for additional permits. It is not expected that the board will find it advisable in the near future to grant more than another 3,000 permits to use wood-gas generators and about 2,000 permits to use peat-gas generators.

A wood-gas generator that will reportedly burn ordinary fresh-cut wood or wood chips has been invented in Sweden. In a demonstration before government authorities the generator proved that it could be employed in motor vehicles satisfactorily.

New Zealand . .

Sharp Rationing Results In 30 Per Cent Drop

NEW ZEALAND's goal of a 30 per cent reduction in domestic consumption of petroleum products has almost been reached, D. G. Sullivan, supply minister, recently told representatives of the motor trades who have been objecting to the curtailment as detrimental to their business.

Like other parts of the British Empire, New Zealand imposed petroleum rationing in an effort to conserve funds. This position was stressed to New Zealanders by Sir Harry F. Batterbee, British high commissioner, who asked gasoline conservation because imports from the Netherlands East Indies were using up funds.

Rationing was instituted in New Zealand last November, but was relaxed following the establishment of an ample reserve. Conservation of currency led to the imposition of a second rationing order.

Panama . .

Submarine Sinks Tanker Off Coast of Palestine

THE Panamanian tanker Beme was sunk by an Italian submarine off the port of Haifa, Palestine, 2 months ago, according to word reaching the New York Maritime Register. The Beme, a 3,039-ton tanker, was owned by P. Diacon Zadeh of Panama. It was built in 1904 in England.

Haifa is the most important oil port in the eastern Mediterranean. The Palestine port is one of the water terminals of the Iraq pipe line and the site of a 40,000-bbl. refinery commissioned early this year.

Brazil . .

Increased Importation Of Fuel and Lube Oil

IMPORTATION of fuel oil and lubricating oil by Brazil is expected to increase following the decree issued by Pres. Getulio Vargas that they were subject to an exclusive federal tax monopoly. Previously imported fuels were taxed two and even three times by political subdivisions. Fuel oil and lubricating oil were included in a recent general order by President Vargas prohibiting states and municipalities from taxing fuels.

Spain . .

Make Application For Exploration

APPLICATION has been filed with Spanish authorities for permission to make a superficial examination of formations and ultimate exploratory drilling, if conditions justify, in the Province of Soria. The application covers 29,800 ha., approximately 74,000 acres. The petitions were split to cover four permits by Compania de Invesigacion y Exploraciones Petroliferos, S.A., Madrid.

Industry May Wait Years for Antitrust Suit Decision

By HENRY D. RALPH

WASHINGTON, D. C., Oct. 7.—The "biggest antitrust case in history," filed by the Department of Justice last week against the American Petroleum Institute and 22 major oil companies, may never be decided by the courts in its present and complete form.

The case is so large, so inclusive, and so complex that it might well take a couple of years to try and perhaps a couple more to secure final adjudication of the decree. In the meantime, however, many things may happen to curtail the scope of the suit, narrow or eliminate many of the issues, or perhaps render the entire case moot. These include congressional action imposing on the industry by legislation some of the things sought to be accomplished by litigation, the results of other lawsuits settled in the interim, natural changes in the oil industry through many causes, and possibly major changes in government policy such as federal control in a war economy.

Legislative action was promised in the Senate last week by Sen. Guy M. Gillette of Iowa, who announced that the bills to force separation of transportation and marketing from other branches of the oil industry, introduced by himself and the late Senator Borah, would be offered again at the next session of Congress in January and that he would press for their early enactment. Such legislation would remove the bulk of the complaints made in the major-company suit. Enactment of federal legislation relating to oil-production methods, such as the pending Cole bill for control of conservation, would eliminate those portions of the suit dealing with crude production.

Case May Be Shorn

Probably two-thirds of the ground would be taken out from under this suit if the Department of Justice should win the three test suits filed simultaneously under the Elkins Act to prevent crude and gasoline pipe lines from paying dividends to major companies which own and use them. These suits charge that the dividends constitute illegal rebates of transportation charges since the owners are the exclusive or chief users of the pipe lines. This is an interpretation which the Interstate Commerce Commission has consistently refused to accept, but the Department of Justice claims to have some legal precedents in connection with industrial railroads and boat lines. Trial of these suits should be relatively short since there presumably is no dispute as to the facts and the cases hinge on the legal interpretation of what constitutes a "rebate." It is not at all impossible that the courts may answer this question before the major suit even goes to trial.

The Elkins Act suits do not ask divorcement of the pipe lines from control by the majors, but in equity suits of this nature the courts have broad powers, and the decrees, if the Government wins, might make it necessary for the majors to get rid of the pipe lines or at least to reduce the rates and minimum tenders so that independent refiners and jobbers would no longer have the complaint that the majors are making huge profits on transportation and thus have a corresponding advantage over them.

In his speech in the Senate, Senator Gillette reviewed the history of the Borah-Gillette divorcement bills and recalled that the Department of Justice last spring asked him not to press for action on them because this suit was being prepared. He then read the letter addressed to him last week by Atty. Gen. Robert H. Jackson urging him to continue legislative efforts to reform the oil industry, and announced that he will do so in January. Referring to the report on the suit made by the National Defense Advisory Council, Senator Gillette said:

"Potential Defendants" on Council

"Without making any invidious or unfair attack, I should also like to refer to the fact that of the 11 members of the council who had this matter under construction, nine were connected with the Standard Oil Co., or with the Shell Oil Co., and had a personal interest in the subject matter. I do not mean to suggest that it is improper to have on the Council of National Defense men conversant with the oil industry. It was highly proper. It was very essential to have on the commission men with some knowledge of the industry; but I want the fact to appear that of the 11 men who were considering the effect of these suits, nine were actual potential defendants if the suits were filed.

"I certainly shall not take the time of the Senate to go into the merits of this controversy. The suits have been filed. It is a wonderful thing for the people of the country that our Department of Justice, having considered and weighed all the potentialities of the situation and the report of the Defense Commission, has decided, within certain limitations, to go ahead with these suits, with no desire to affect in any way the national defense.

"I may say, in that connection, that one of the things the Advisory Commission to the Council of National Defense refers to is that $13,000,000 is about to be spent for the construction of a pipe line on the Atlantic Coast; and if these suits are filed they do not know whether it will be possible to go ahead with the construction of that pipe line and the expenditure of $13,000,000. Imagine the expenditure of $13,000,000 in a defense program being weighed against a $3,000,000,000 industry that we are trying to reach, and the abuses that we are trying to remove from that industry—abuses which the federal court in Madison, a little over a year ago, took the first step toward correcting by the decisions and the convictions secured in that court.

"If many years lapse between the commencement of a suit and the decision, what possible immediate effect will it have on the national-defense situation if there is to be no decision in the suits filed before a matter of several years?"

Senator Gillette also referred to the conferences with oil men held recently by Secretary of the Interior Harold L. Ickes, and he let it be known he will not permit voluntary or administrative control of the oil industry to take the place of legislative action. He stated:

"There have appeared in the public press lately a number of articles indicating that this whole matter was to be referred to a supervisory body composed of representatives of the companies, and some of the officials of the U. S. Government, that Secretary Ickes, of the Department of the Interior, was meeting with representatives of some of the oil companies to pave the way for such a supervisory body.

"I do not know whether or not that report is true. The only authority I have for it is a number of excerpts and clippings which were sent to me reciting that such is the plan. But I wish to give notice now that no supervisory body composed of the secretary of the interior, or any other official, and Mr. Teagle or anyone else representing the oil companies, shall supersede the legislative rights of the American Congress to go into this whole field. When this proposed legislation is reintroduced, if such a body is contemplated or appointed, it will not deter or delay, so far as I am able to secure action, prompt action by the Senate of the United States."

Wheels of Justice Grind Slowly

In addition to the possibilities of congressional action and of a government victory in the Elkins Act suits, other things may happen while the A.P.I.-major company suit is pending which could affect its outcome and narrow its scope. The most optimistic officials in the Department of Justice do not expect the case to be set for trial before next spring. The intervening months will be occupied with motions to extend the time for filing answers, filing and disposing of motions to dismiss as to various defendants, and other pretrial legal maneuvers. Actual trial of the case could easily be spread over a year or two—the recent Aluminum Co. case took 2 years to try—and the trial might be interrupted by attempts to negotiate consent decrees. Preparation of an injunction, motions for reconsideration, and appeal to the Supreme Court would probably extend over another couple of years, at least.

In the meantime, however, the department plans to go ahead and attempt to prove every allegation and charge in the suit, though there is reason to believe that some of the allegations will not be pressed very vigorously. The suit apparently contains every important complaint and criticism of major-company operations which has been presented to the department in recent years, and some of the allegations seem to be contradictory. The industry is charged with too much competition as well as too little, with restricting crude production as well as failure to conserve crude, with lowering prices as well as raising them. Among the allegations which would seem to have been thrown in just to make the case look stronger and which may not be pressed in the trial is the charge that majors are denying the public the benefits of technological improvements.

For better earnings

I would like your advice on increasing the capacity of our cracking plant We have put through an average of 2100 barrels a day for the past three months, more than ever before If we could put through say 2400 barrels a day it would add very appreciably to our earnings

That was written to Universal by a Dubbs refiner in the Mid-Continent last July Gasoline prices were low in spite of record demand He went on to say:

In the present crucial state of the oil business it is important that we reduce our plant expenses The only two practical ways that I can conceive are to increase the octane by use of a polymerizer and decrease our per barrel expense, particularly in cracking

That refiner knows *what* to do to better his position He is asking Universal *how* best to do it

They are telling him and helping him

They will help you, too

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

Refinery Expansion

Continental Adds Additional Copper Sweetening Units

Continental Oil Co. has completed plans for the construction of a 4,000-bbl.-per-day liquid-process type Perco copper sweetening unit at its refinery now under construction near Lake Charles, La. This unit is to be built in accordance with plans and specifications furnished by Perco, Inc., Bartlesville, Okla. In addition to the 2,000-bbl. solid-process type unit recently completed and put into operation at its Wichita Falls, Tex., refinery, Continental has other units installed in its refineries at Ponca City, Okla.; Artesia, N. M., and Denver, Colo.

War Department, Humble Agree Upon Toluene-Plant Contract

WASHINGTON, D. C.—Provisions of a contract for construction of a $12,000,000 toluene plant at Baytown, Tex., were agreed upon by Humble Oil & Refining Co. and the War Department last week. The Government-financed plant, for manufacturing toluene from petroleum, is to be located on a 60-acre tract near the company's Baytown refinery, and is a part of the national-defense program. The Government will supply the funds in five installments under the national-defense amortization plan. War Department officials said the contract is about ready for signatures.

Eastern States Expanding Houston Storage Facilities

HOUSTON, Tex.—Eastern States Petroleum Co. of Houston has purchased a 20-acre tract on the south side of the Houston Ship Channel adjoining its refinery and terminal, east of Houston, with a view toward major expansion of the company's present storage and shipping facilities. Work is being started already on the erection of three 93,000-bbl. storage tanks, while dredging is under way in preparation for the construction of new loading docks. Plans call for completion of the docks by November 15.

McNutt Completes Construction Of Desulfurization Unit

EL PASO, Tex.—C. E. McNutt, refinery manager of McNutt Oil & Refining Co., has announced the completion of a 500-bbl.-per-day Perco catalytic desulfurization plant built in accordance with plans and specifications furnished by Perco, Inc., licensors, Bartlesville, Okla. This unit is currently processing Ward County, Texas, straightrun gasoline and total sulfur reductions are of the order of 90 to 95 per cent.

Falls City May Receive Two Skimming Plants

OMAHA, Neb.—The Falls City pool of Southeast Nebraska, at present without a refinery outlet after its discovery about 1 year ago, is scheduled to receive two refineries in the immediate future. The field, which will pass its first anniversary in November, now has a daily production of about 2,500 bbl. with new producers steadily being added.

Construction of a 2,000-bbl. skimming plant near Falls City is expected to get under way the latter part of this month by Curtis Flint of Haynes, Calif., and Robert C. Druesdow of Omaha. This plant will produce only straightrun gasoline, distillates, and fuel oils at first, but the operators plan to install cracking equipment.

Second plant for the field is to be built by Mid-States Refining Co., of which R. D. Swan, Joliet, Ill., is president. This company has acquired a 2,500-bbl. skimming plant at Neosho Falls, Kans., and is dismantling it for movement to Falls City. Combustion Engineering & Construction Co., of Houston, Tex., is moving the plant, which is expected to be placed in operation about November 15.

Tax Exemptions Granted on Standard of Louisiana Work

BATON ROUGE, La.—Tax exemptions on $5,800,000 worth of new equipment were granted Standard Oil Co. of Louisiana last week by the State of Louisiana under its 10-year exemption plan for new industries in the state. The grant covers two new units at the Baton Rouge refinery, the synthetic-rubber plant and a $3,000,000 catalytic cracking unit, on which construction was recently begun. The synthetic-rubber plant is being built on a 75-acre tract north of the Standard refinery and is scheduled to begin operation about March 1. The plant will manufacture about 10,000 lb. of synthetic rubber daily.

Richfield to Construct Crude Stabilizer in Tupman Field

LOS ANGELES, Calif.—Richfield Oil Corp. is making preparations to erect and place in operation a crude stabilizer in the Tupman field of Kern County to treat production from the company's wells on the Kern County Land Co. lease. Cost is estimated at from $300,000 to $400,000. This stabilizer is necessary because the high-gravity oil produced by the company in the Cole's Levee and Tupman fields loses from 5 to 10° in gravity in transit between the field and the refinery at Watson in Los Angeles Basin. These lighter fractions will be recovered in the field and thus construction of this stabilizer will promote more efficient operation. Construction work will be done under supervision and direction of Harold Linhoff, manager of the company's gas department.

Natural Gas

Hearing on Mississippi River Fuel Continued

WASHINGTON, D. C.—The consolidated proceedings before the Federal Power Commission set for public hearing on October 7 relating to the formation of the syndicate which owns and controls the Mississippi River Fuel Corp. was continued to October 30, 1940, by order of the commission. The companies involved in the proceeding, which furnish the entire natural-gas requirements of the Mississippi River Fuel Corp. and which, it appears, own and control the distributing corporation, are: United Gas Pipe Line Co., Southern Carbon Co., Interstate Natural Gas Co., Inc., Hope Producing Co., and United Carbon Co. Continuance was granted upon request of counsel for the Interstate and Hope companies.

F.P.C. Calls Hearing on Gas Rates in Two Ohio Cities

WASHINGTON, D. C.—The Federal Power Commission, sitting en banc, will hold a public hearing on November 20 on the joint motion of the cities of Cleveland and Akron for an immediate order directing a reduction of approximately $662,000 per year in the rates for natural gas sold by Hope Natural Gas Co. to its affiliate, East Ohio Gas Co., for resale in the two cities. The commission has directed that main briefs in the case be filed by November 1, and reply briefs within 10 days following. Oral argument of counsel will be presented at the hearing, which is to be held in the hearing room of the commission.

Consolidated proceedings concerning rates charged by the Hope company to various distributors have been in progress before the commission for some time. The company completed its evidence-in-chief at public hearings held at Clarksburg, W. Va., and it is upon the basis of the company's own testimony that the two Ohio cities are seeking an immediate order of the commission reducing rates. The Hope company, answering the complaints filed against it, has denied that the price for natural gas sold to East Ohio is unreasonable or discriminatory.

Michigan Consolidated Plans Work in Austin Gas Field

WASHINGTON, D. C.—Michigan Consolidated Gas Co. will spend nearly $800,000 for wells, lines, leases and other equipment in the Austin gas field in Mecosta County, Michigan, if application filed with the Securities Exchange Commission in Washington is approved. Authority is sought by Michigan Consolidated to spend $750,000 for property consisting of land, gas wells, well-head connections, meter stations, gathering lines, oil and gas leases, gas leases and contracts covering the sale of gas from the land. The company also stated that it has obtained an option, exercisable on or before November 1, to purchase additional property in the Austin field for $30,000 and that it also intends to purchase the remaining property in the Austin field consisting of approximately 1,500 acres of land, two gas wells and other property.

Natural Gasoline

Contract Awarded for La Gloria Field Gas-Recycling Plant

CORPUS CHRISTI, Tex.—Unitization of acreage in the La Gloria field, Jim Wells and Brooks counties, Texas, has been completed and general contracts have been let by the newly formed La Gloria Corp. for the construction of a condensate-recovery and pressure-maintenance plant. Clearing of the 20-acre site for the plant already has been started and construction of the plant is expected to be under way before the close of the month.

Contract for the construction of the plant was let to Hudson Engineering Co. of Houston, while Gus Canales of Premont, Tex., has the contract for clearing of ground and excavation work for foundations. The project also includes the drilling of 20 wells, which will be handled under separate contracts. Location of the plant will be on the Fay Fisher land, Lot 9, Block 3, Jim Wells County, which is about 3½ miles northwest of Falfurrias, Brooks County, and just west of the main Alice-Valley district highway.

La Gloria Corp. was organized by Robert T. Wilson, Corpus Christi; John Sheeran, San Antonio, Tex., and Clyde Alexander, Dallas, Tex., who also are associated with the Corpus Christi Corp., Coastal Recycling Corp., and Gulf Plains Corp., which operate recycling plants in the Agua Dulce-Stratton district of Nueces County.

Standard Nearing Completion Of New Coalinga Plant

LOS ANGELES, Calif.—Standard Oil Co. will soon complete construction work on a new absorption plant in the Northeast Coalinga field of Fresno County and it should be placed in operation within another few weeks. Wells in the Northeast Coalinga field produce under a high gas-oil ratio and consequently facilities have proved inadequate to cope with production of an ever increasing number of new wells. This plant will process not only Standard's production of gas but also that from other nearby wells. Production of the Northeast and Southeast Coalinga fields differs very radically due to a gas cap in the former area and a small amount of gas production in the latter area.

East Texas Still Dominant As Tenth Producing

By GEORGE WEBER

East Texas, scene of one of the industry's most chaotic debacles in its early development, but now a stable, settled field, this week celebrates its first decade of existence. While its operators have overcome many of the difficulties that have beset the field during its 10-year span of life, many others remain and will have to be solved if the field is to continue to be a vital factor in the country's crude supply.

Refining in East Texas has declined considerably from the early days of many "teakettle" plants, to the present with only 16 local plants, of which six are operating. Right: Close drilling has extended to river bottoms, which are lined with wells in offset positions

THE largest oil field in the world is 10 years old. East Texas, comprising nearly 26,000 producing wells and extending over 132,000 acres, has produced about one-third of its estimated ultimate reserve of 4½ billion barrels of crude.

During the first decade of its producing history the field was a dominant and sometimes chaotic factor in the oil industry. Dominant it will remain for many more years, for its reserves and huge potential are unapproached by any other single field yet developed.

East Texas entered the picture at the beginning of the depression. Its production during the past 10 years has netted producers nearly 1½ billion dollars and it was influential in sustaining Texas prosperity through the depression period. For decades yet to come the field will serve as a major source of income and employment and a large market for equipment and supplies.

But East Texas has not been an unmixed blessing to the oil industry. The words "hot oil" grew famous there. Millions of barrels of 10-cent oil flowed from its wells. Today it presents a powerful example of overdevelopment, with an average density of one well to five acres and a daily allowable production limited to 2.32 per cent of its hourly potential.

Most wells in the field are cut to a theoretical 20-bbl. daily production, actually average less than 15 bbl. daily including shutdown days. It remains a threat to the crude market, for although it seems safely controlled for the future, its present potential production, if loosed for 1 day, would theoretically dump on the nation 100 days' supply of crude at present total United States production rates.

Past Production Share

East Texas entered the oil economy of the nation with a rush. From a small production during the last 3 months of 1930, when the field was undergoing discovery, East Texas crude production rose to over 100,000,000 bbl. in 1931, nearly one-third of the entire state production and one-eighth of the nation's. It continued a rapid rise in the production ranks and in 1933 exceeded 400,000,000 bbl., more than one-half of the state production and over one-fifth that of the nation. From that year to the present controlled production gradually cut East Texas' share in state and national output, until in 1939 it produced 30 per cent of Texas crude and 11.7 per cent of all oil produced in the United States. (Fig. 1.)

Although East Texas rapidly became a vital factor in crude supply in this country, its departure from that role will be gradual, much less spectacular, but no less effective. Depletion of

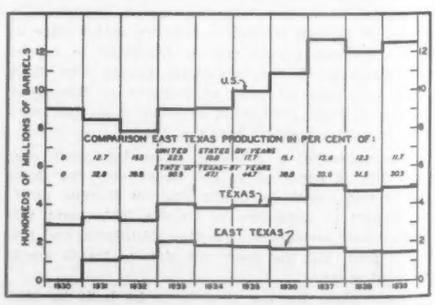


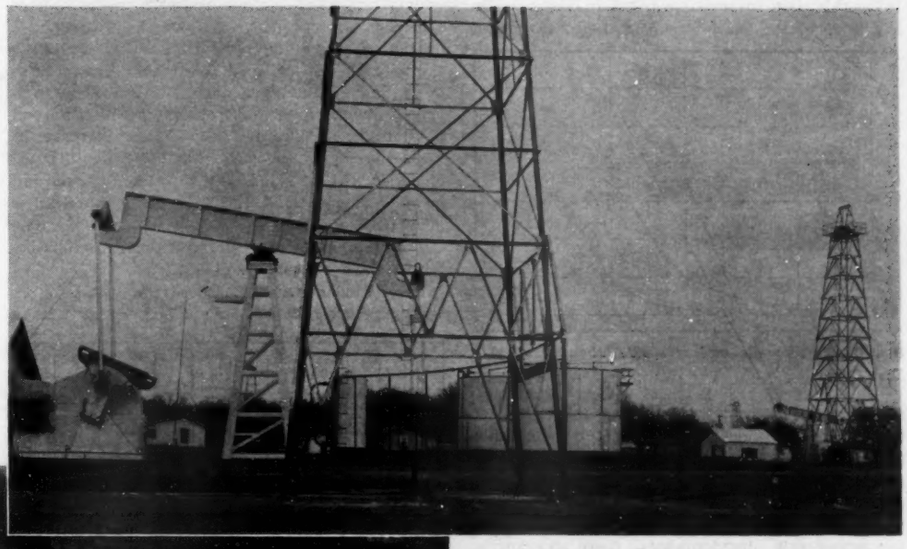
Fig. 1—United States, Texas and East Texas production

Factor in Industry Year Ends

the estimated remaining 3,000,000,000-bbl. reserve will over a period of the next few decades call for a tremendous drain on the nation's other reserves, present and yet to be discovered. To replace East Texas in the current picture, reserves equal to those now developed in Oklahoma, Arkansas, Louisiana, and Illinois would be required.

The recent decision of the Supreme Court of the United States returned the field's proration plan to the former potential basis after a hectic year in the courts. Although proration litigation is expected to continue, for the near future at least production will continue relatively unchanged from the present.

At the current production rate, withdrawal of half the estimated reserve will have been effected by early 1946. The remaining half will require many more than the estimated 15½ years needed to produce the first half, and barring drastic proration changes, production will hold to the present level for the next several years, then gradually decline.



Above: Artificial lifting equipment in increasing volume demand makes East Texas the industry's greatest single proving ground and market for pumping and gas-lift units. Left: Tax millions have made modern cities of former boom towns in East Texas. This view of Kilgore shows the new community center

Income

Prices paid for East Texas crude have shown the greatest variation of any field in history. Beginning under $1 in 1930, the posted price fluctuated widely between 10 and 98 cents during 1931-33. Stabilized at $1 from late 1933 to early 1936, it rose to a top of $1.35 during 1937 and 1938 and has since leveled to $1.10. Over the past 10 years, based on posted prices, corrected for estimated "hot oil" run at lower figures, approximately $1,450,000,000 has been paid for crude from the field.

Its effect has been felt throughout the industry. Suitable for refining into good fractions of straightrun and cracked gasoline, the crude has figured largely in the increased motor-fuel demand during the past several years. The large straightrun gasoline fraction, on the other hand, was responsible for much of the distress which East Texas wrought in the refining economy in its earlier days.

To a section of Texas condemned by many geologists as nonproductive, it brought prosperity throughout the depth of the depression. At present it supports the great share of East Texas economy. Total wage earners in the field at the beginning of 1939 numbered 16,480.* The total pay roll during 1938 was $20,922,200 in the field alone. During the same year, lease and royalty payments totaled $28.867,537.

Statistics on the five counties in which it is productive reflect its dominant share in property value, and its heavy burden of taxes. The assessed value of all properties for 1939 in Gregg, Rusk, Upshur, Smith, and Cherokee counties totaled $272,874,385, of which oil properties accounted for $226,053,144, or 82.8 per cent. The total valuation for 1940, compared with a total of $51,017,000 for 1930 shows an increased valuation of 435 per cent over the 10-year period. Valuations in Gregg County rose 2,000 per cent in the same period.

Population of the five counties in 1930 was 166,862. By 1940 this figure increased to 248,103, a 48.7 per cent increase brought by the East Texas field. Cities located in or near the field have grown from three to eight times their size since the field was discovered.

*Employment, evaluation and tax figures from Texas Mid-Continent Oil and Gas Association.

Tax Burden

It is impossible to estimate accurately the aggregate income to federal, state, and local treasuries accruing from East Texas oil. State and local taxes paid on production and producing properties during 1939 totaled $12,129,960, averaging 8.7 cents per barrel. An average federal tax of 5 cents per barrel brings the total tax bill to an estimated $18,000,000 for 1939.

To January 1, 1940, it is reliably estimated that $100,000,000 has been paid in state and local taxes by East Texas producers, excluding tax payments on refinery, pipe-line and marketing operations. An estimated one-half billion dollars has been paid to farmers and other landowners in royalties, lease rentals, and bonuses. A study of 12 representative independent school districts of East Texas reveals that 82 per cent of the total revenue collected comes directly from the oil industry, and in several districts oil's share is over 90 per cent.

East Texas today presents a marked contrast to the early boom days of its development. Excellent highways thread the field, and schools, community centers, churches and other public buildings are among the finest in the nation. A good share of the wealth has remained in East Texas.

The most immediate and greatest future problems in East Texas arise from increased salt-water encroachment. The current problem is salt-

water disposal. Resort to artificial lift and water-well abandonments are among the more important future problems occasioned by increased salt-water withdrawals.

During the past 10 years between 75 and 80 per cent of well abandonments were caused by water flooding. The remainder, occurring on the east side of the field, were due to lowered reservoir pressure. A method for anticipating the west-side abandonment rate is revealed in a study of water wells by Hudnall and Pirtle, consulting geologists of Tyler.

Water encroachment has progressed sufficiently to this date to reveal a trend in water wells. Fig. 2 shows the yearly trend in the total number

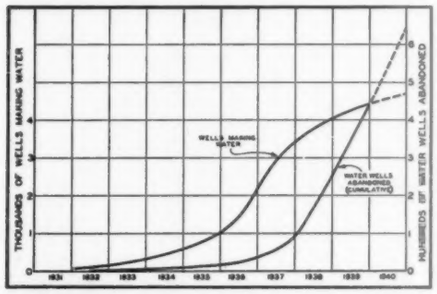

THOUSANDS OF WELLS MAKING WATER
HUNDREDS OF WATER WELLS ABANDONED
WELLS MAKING WATER
WATER WELLS ABANDONED (CUMULATIVE)

Fig. 2—Water wells and west-side abandonments in East Texas

of wells making water, according to reports of the Texas Railroad Commission. It is noted that the curve inclines gradually at first, then swings sharply upward during 1936-37. Thereafter it tends to level off to a more gradual rise. The latter trend is a result of several factors, including water-well abandonments, field shutdowns, and, to a small extent, plug-back jobs.

A more pertinent index of future water-well abandonments is the factor of wells beginning to make water. Studies of East Texas and other Woodbine water-drive fields in early and mid-production stages have shown that a lag of approximately 5 years exists between the time a well begins to make water and the time it is abandoned, due to water flooding. While this lag may hold for East Texas over the next few years, it is expected that a period much greater than 5 years will elapse between the two stages as water encroaches further eastward to the thicker sand section.

Year	Wells making water as of Jan. 1	Increase in water wells during year	Water wells plugged and abandoned during year	Total wells beginning to make water	Estimated total reservoir space voided by water and oil (mil. bbl.)	Wells beginning to make water per million bbl. of reservoir
1931	77	..	....	....	....	....
1932	154	77	1	78	111.941	.7
1933	345	191	4	195	150.267	1.3
1934	611	266	5	271	141.015	1.9
1935	1,010	399	5	404	138.308	2.9
1936	2,151	1,141	18	1,159	141.163	8.2
1937	3,462	1,311	55	1,366	157.313	8.7
1938	4,021	559	164	723	154.392	4.7
1939	4,424	403	184	587	176.106	3.3

The accompanying table is used in calculating the data plotted in Fig. 3. Wells making water as of the last of each year since 1932 are taken from private tabulations and reports of the Railroad Commission. Column 2 shows the increase in wells making water each year. To the increase is added the total of water wells plugged and abandoned and the resulting total is the number of wells beginning to make water each year. The table and chart show a definite peak in wells beginning to make water in 1937.

The actual curve is modified somewhat by determining the number of wells beginning to make

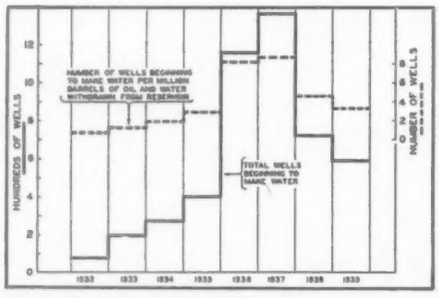

HUNDREDS OF WELLS
NUMBER OF WELLS
NUMBER OF WELLS BEGINNING TO MAKE WATER PER MILLION BARRELS OF OIL AND WATER WITHDRAWN FROM RESERVOIR
TOTAL WELLS BEGINNING TO MAKE WATER

Fig. 3—Yearly trends in wells beginning to make water

water on the basis of total reservoir space voided by oil and salt water. This corrects for variable oil production and increased water production. Reservoir space voided is determined by adding estimated water withdrawals and oil production corrected to reservoir conditions. The peak on this basis remains during 1937 and subsequent decline is more modified.

From this trend it is indicated that abandonment of water wells will continue to increase until approximately 1942 or 1943, when the rate will level off. Fig. 2 shows that water-well abandonments have begun to increase sharply, corresponding to the steep incline in the rate of wells beginning to make water in 1935, 5 years ago. Since the abandonment rate is apparently approaching its steepest section on the curve, it is not feasible to attempt to trace the curve beyond known values at present.

During the past several years, reservoir pressure has declined steadily. East-side abandonments are caused by lowered pressure and resulting lowered fluid levels, and their abandonment rate has been likewise gradual and may be expected to continue so.

It should be pointed out that well abandonments in East Texas will depend largely on future crude prices, proration policy and possible new pumping technique. These factors cannot be anticipated and the generalized conclusions regarding abandonments disregard them. Salt-water disposal costs in the future will also constitute an important factor in abandonment of water wells. It is interesting to note that at present, with about one-third of the estimated reserves produced, only one-thirtieth of the wells in the field have been abandoned.

At the present time a total of about 25,905 wells are producing in East Texas. The peak in number of producing wells was passed in November 1939, which showed 25,987 wells on actual production at the end of the month. Since that time abandonments have exceeded new completions and unless new drilling is greatly increased, which is unlikely, the number of wells in East Texas will continue to decrease. The estimated total field potential has also passed the peak and is expected to decline with the number of producing wells.

A marked trend toward individual well-pumping units, powered by low-horsepower multicylinder or electrical motors, is seen in East Texas

Salt-Water Disposal

One of the principal problems currently facing East Texas operators on the west side of the field is salt-water disposal. The most recent salt-water report of the Texas Railroad Commission shows a total daily withdrawal of nearly 188,000 bbl. of Woodbine water as of August 1, 1940. While this represents a decrease from the top figure of 199,738 bbl. reported November 1, 1939, it is estimated that water withdrawals will exceed 200,000 bbl. daily before 1941.

Disposal of this vast volume of water without pollution of streams has become a major engineering problem. Injection of the salt water back into the Woodbine sand has been adopted by many major oil companies. The work was begun in 1938 when Sun Oil Co. placed an injection system in operation on the south end of the field. As shown in the accompanying table, the disposal method has been widely adopted this year, and at present over 1,000,000 bbl. are being returned to the Woodbine monthly in over 21 injection wells on the field's west edge. This accounts for approximately one-sixth of the field's total water withdrawal, nullifying the effect of that much

salt-water disposal as it applies to reservoir pressure in the field.

SALT-WATER INJECTION IN EAST TEXAS

	Monthly injection (bbl.)	Accumulative total (bbl.)	No. wells
1938:			
June	38,586	38,586	1
July		38,586	1
August		38,586	1
September	24,004	62,590	1
October	49,603	112,193	1
November	51,242	163,435	1
December	59,618	223,053	1
1939:			
January	58,118	281,171	1
February	50,341	331,512	1
March	73,683	405,195	2
April	72,576	477,771	2
May	61,716	539,487	2
June	94,506	633,993	3
July	132,732	766,725	6
August	135,537	902,262	7
September	239,170	1,141,432	8
October	334,906	1,476,538	9
November	487,085	1,963,423	10
December	510,391	2,473,814	11
1940:			
January	575,622	3,049,436	11
February	462,262	3,511,698	12
March	633,769	4,145,467	14
April	662,858	4,808,325	16
May	770,040	5,578,365	17
June	765,483	6,343,848	17
July	968,700	7,312,548	21
August	1,022,505	8,335,053	21

Pumping Trends

A total of about 18,900 wells in East Texas will go on artificial lift during the remaining life of the East Texas field. This vast demand of lifting equipment will make East Texas a proving ground for new designs, as it has been for existing ones.

The trend in wells going to the pump, as shown in Fig. 4, has been more gradual during the past 2 years than previously. Many wells which are rigged up to pump still make their allowable without artificial lift, and many more require only agitation. This backlog of pumps rigged up but not yet used will care for part of the increased trend to pumping without reflecting in new installations, for engineers are making more thorough studies of pumping requirements and the volume of unused equipment in the field should decline.

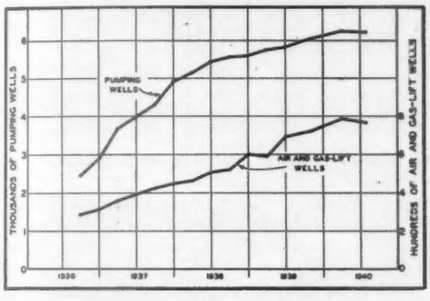


Fig. 4.—Trends in artificial lift

While no spurt in pump installations is anticipated in the near future, an interesting trend in types of pumping units is seen at present. The installation of central powers and backside-crank units in recent months has declined to a marked degree. Nearly all new installations are now individual well units.

This trend is explained by the fact that pumping efficiency in East Texas is better attained by studying individual well performance and installing on each well the type of unit best suited to produce it. Increased water production and declining pressures make it difficult to keep multi-well hookups in balance.

In addition to the swing to individual pumping units, a definite trend toward lighter units is noted. One company in following this trend has made a study of smaller pumping installations and has determined that units with as little as 5-hp. rating are feasible. Such units are used to pump up the hole, using ⅝-in. rod strings and insert pumps. They are mounted on skids instead of concrete foundations and are considered for use during the early pumping stage of the well. Although they are not installed to pump the well to depletion, they are completely salvageable and can be used from lease to lease as required.

Despite the current problems brought on by close well spacing in the field, drilling continues. Here, more wells are being drilled on sites formerly occupied by buildings

The likelihood that proration will continue on its present status allows operators better to project pumping plans for their leases into the future. Most units going on wells at present are rated at more than 5 hp., but their size and prime movers are smaller than was previously believed practical. Such units are being installed on both east and west edges of the field. Lower pumping rates mean longer hours for lease labor in some cases, but in others, where electric power-driven pumps are time-clocked for certain pumping schedules over 24-hour periods, pumpers' hours and peak electrical-power demand are both kept to a minimum.

Another view of an individual well-pumping unit, increasingly used in East Texas

Gas Lift

Currently, gas lift is seeing no appreciable increase in acceptance. This is due mainly to a lack of sufficient high-pressure gas in the field. When high-pressure gas from Chapel Hill was first moved into the field, gas-lift installations increased sharply and the gas supply is now taken up by the increased demand. The rate of 3 cents per 1,000 cu. ft. makes gas-lift using Chapel Hill gas feasible for most wells requiring artificial lift. Certain types of gas lift now in use in the field are producing allowables on wells making up to 98 per cent salt water.

There is a good possibility that more Chapel Hill gas may soon be available in the field, and the further possibility that gas from the Willow Springs field, just east of East Texas, may enter the field indicates that gas lift will again find increased acceptance. Many engineers for major and independent companies are seriously considering the adoption of gas lift for future production programs.

Relation of Electric Power to East Texas' Development

By JOSEPH E. ELLIOTT
Southwestern Gas & Electric Co., Shreveport, La.

ELECTRIC service is supplied to the East Texas oil field by the Southwestern Gas & Electric Co. This company also furnishes electric service to 150 towns and cities, totaling 350,000 population in an area embracing 30,000 square miles in East Texas, North Louisiana and Arkansas.

When activity started at Joinerville, after the discovery of the East Texas oil field, the company authorized the extension of a 2,300-volt rural line to give lighting service to the new inhabitants of this territory. Before the line was completed, it was necessary to increase the voltage from 2,300 to 11,500 volts. While construction was under way on this line, the Bateman discovery was made near Kilgore, and it became necessary to strengthen the line between Longview and Kilgore.

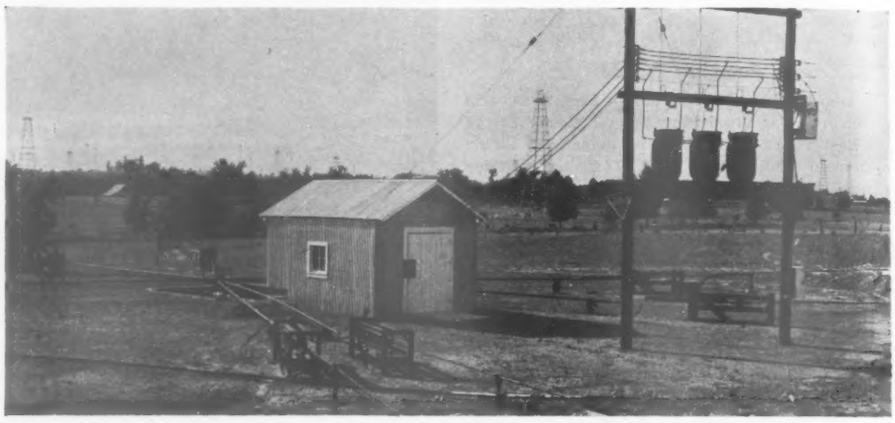
Before this was completed, construction was authorized to connect Kilgore and Joinerville to close the 11,500-volt loop. Prior to the completion of this project, it was found necessary to again change construction and authorize an additional 11,500-volt line between Kilgore and Joinerville, approximately 3 miles west of the original loop line.

Three substations of 3,000-kva. capacity from 66,000 to 11,500 volts were erected at Longview, Kilgore and Friar's Switch. The Lathrop well was discovered subsequent to the completion of this construction program. The Lathrop area was served from an existing 66,000-volt line, connecting Longview and Gladewater through the installation of a 5,000-kva. substation at Gladewater.

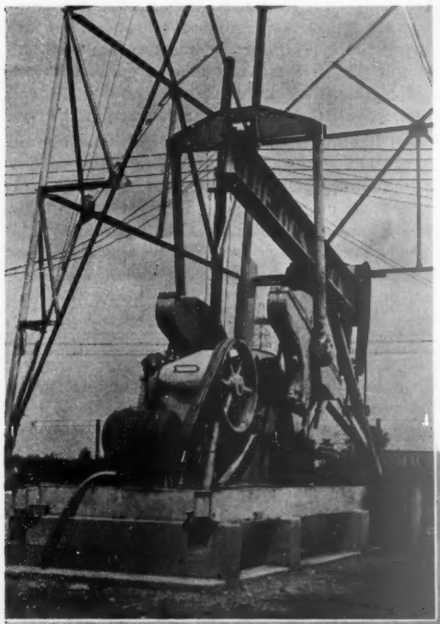
Increased demands for power resulted in the building of an additional 66,000-volt transmission line into the field from the company's main generating station at Shreveport, La. The network of transmission and distribution lines was further strengthened by interconnection with two adjacent power systems and building a 66,000-volt loop around the entire field, fed from several different sources.

At present the field is supplied through seven major transformer substations identified as follows:

	KVA.	Kv.
Overton	25,000	132-66
Longview	6,000	66-11.5
Kilgore	6,000	66-11.5
Gladewater	5,000	66-11.5
Friar's Switch	3,000	66-11.5
London	3,000	66-11.5
Henderson	2,000	66-11.5



Purchased electric power is used on many East Texas leases for driving central-power installations



Left: Typical electric motor-driven pumping unit in the East Texas field. Below: Southwestern Gas & Electric Co.'s 5,000-kva. substation near Gladewater

The company has taken every precaution to supply the East Texas field with maximum continuity of service, so essential to successful oil-field operation.

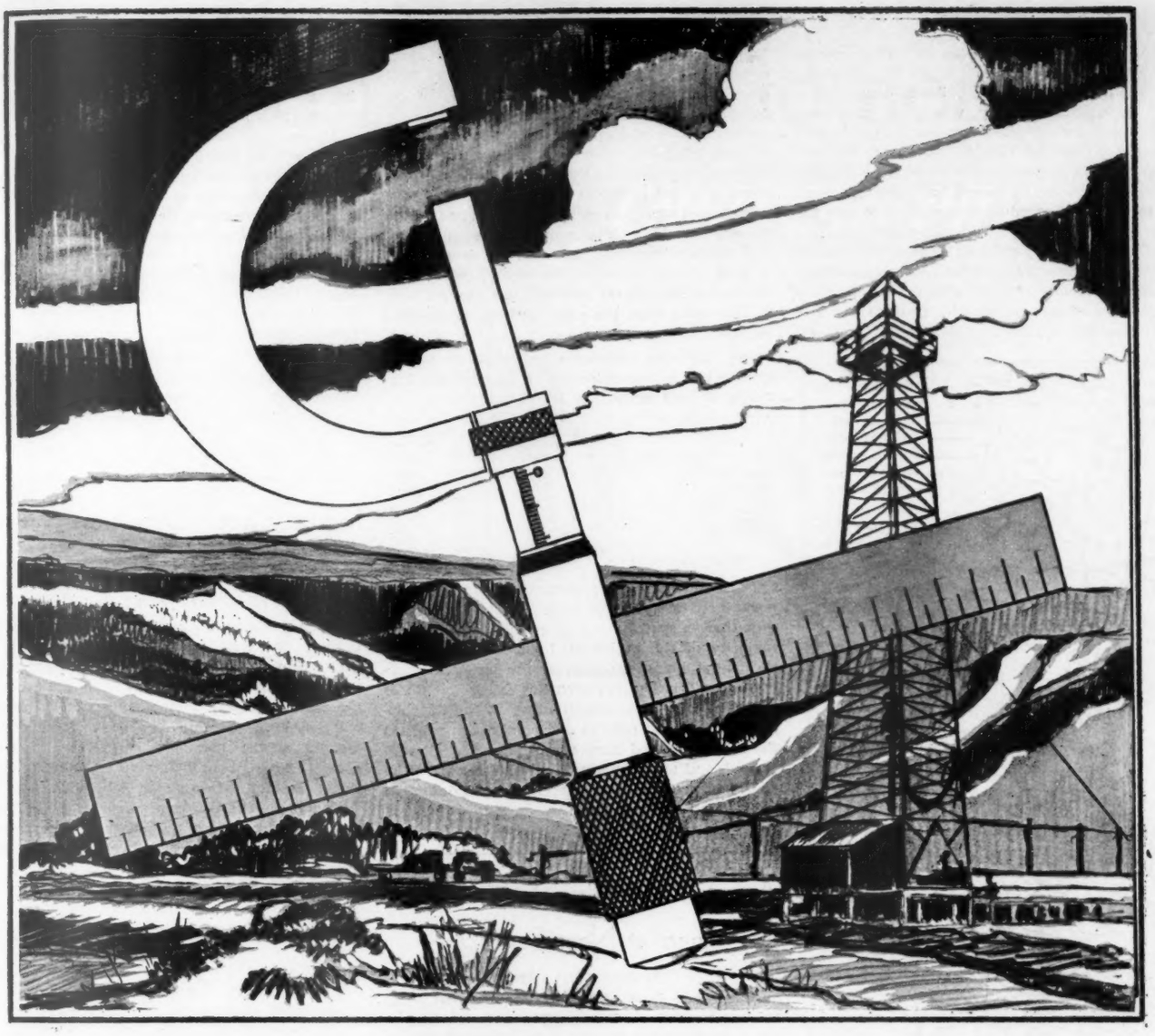
During the early development of the field, it was necessary to work construction crews continuously. Lines had to be surveyed and built by torch lights in order that service might be supplied when, where and in the amounts required by the oil companies with the least possible delay.

In view of the low first cost and short time required to put a well on the pump, and a pipe-line pumping station into operation by the use of electric power, many oil companies made generous use of electric service. It is difficult to determine accurately the total horsepower connected by the various companies operating in the East Texas field, but it is conservatively estimated the total load is between 75,000 and 100,000 hp.

The company has constructed 481.5 miles of 11,500 and 66,000-volt transmission lines in the field with approximately 300 miles of distribution lines of lower voltage. The transmission and distribution lines criss-cross the field and are fed from several different directions to assure continuous service. Electric service is available on almost any lease, or can be made available upon short notice.

The rate schedules applicable in the East Texas oil field were designed to meet the peculiar operating characteristics of the oil business. The general power schedule, which is a block-type rate, is particularly adaptable to low operating-load factor business. Under this schedule, the customer is required to pay only for the kilowatt-hours actually consumed.

The company's oil field large industrial power schedule was designed for higher load-factor operation. This schedule is a two-part rate and con-



PRECISION

Another reason why Mission Pump Parts deliver such outstanding performance . . .

PRECISION means dependability—it means long, uniform trouble-free life for every part. Knowing the importance of precision, Mission takes exceptional care to make every part as nearly perfect as modern precision testing instruments will allow.

Take Mission Pistons for example:—High grade alloy steel of *exactly* the right analysis is forged into tough, homogeneous piston bodies. These bodies are heat treated in furnaces equipped with the most modern precision controls.

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Materials, treatment, design and size—Mission checks every step to make all Mission Pistons deliver the performance that has made them favorites throughout the world.

MISSION Slush Pump PISTON

MISSION MANUFACTURING CO.
HUMBLE ROAD, HOUSTON, TEXAS

sists of a demand charge, plus an energy charge. It is on this type of rate that the oil companies earn the lowest net rate per kilowatt-hour.

The group-billing policy, which we have instituted, is particularly advantageous to the oil companies in view of the fact electric service for each power location is added together and one statement rendered as though all energy had passed through one meter. This schedule is applicable where the customer owns and maintains the distribution and transformation equipment on its respective leases. Schedules are also available for both high and low load-factor business under which schedules the company owns and maintains the transmission and transformation equipment. Where the company

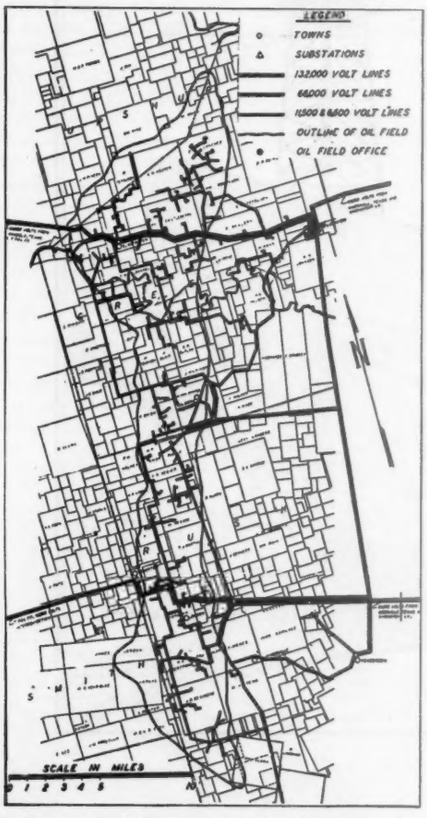

Diagram of Southwestern's power distribution system in the East Texas field

owns and maintains the distribution and transformation equipment, each service location is billed separately.

The company standardized on 110-440 and 2,300 volts secondary for the field. Secondary voltages in the towns were standardized on 110-220 in order to avoid duplication of distribution facilities. These voltages are supplied in either single or three-phase service.

A practice followed by several of the oil companies is to purchase transformers with the necessary taps providing for operation on primary voltages of 11.5, 12.5 and 13.2 kv. with secondary voltages of 440-2,300. These transformers are slightly higher in first cost than the standard rated transformer, but the advantage to be gained is in the fact they can be used on practically every utility system located in the Mid-Continent area.

It is general practice to install two transformers connected open delta and later to install a third transformer when the load increases to an extent where increased capacity is required.

Towns lying in close proximity to the field as Longview, Kilgore, Henderson, Gladewater, Gilmer and Joinerville received the first results of efforts to develop this great natural resource. Oil-well supply firms, wholesale dealers, machine shops, lumber companies and many other supply firms were the first to obtain the benefits of the new development.

The transfer of employes and their families by oil companies and other companies related to the oil industry, has been a major factor in the growth of many of the towns in this area.

Increased wealth to many natives, in and around these towns, due to lease rentals and royalties, has also been an important factor in the development of these towns. Increased revenue to these towns, through additional tax revenue, has enabled them to keep pace with the rapid growth by building and beautifying their cities.

The following tabulation indicates the normal growth of the towns located in or near the East Texas oil field since 1930:

	1930		1939	
	Population	No. customers	Population	No. customers
Longview	5,036	1,282	21,800	4,835
Kilgore	836	120	12,000	3,334
Henderson	2,932	731	8,500	1,697
Gladewater	550	104	7,000	1,534
Gilmer	550	104	3,000	773
Joinerville	.....	..	1,000	873
Total	11,344	2,806	53,300	13,051

These towns did not experience the "mushroom" growth characteristic of most oil-field towns. The growth was systematic and gradual with a large majority of the buildings, both commercial and residential being constructed for permanent occupancy. The Southwestern Gas & Electric Co. is proud of its part in contributing to the development of this vast reserve and points with pride to the miles of paved streets and highways, all well lighted, and to the many new buildings and palatial residences of modern architectural design in and around this vast field.

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Axis Drive on Rumania May Be Aimed at Near East Oil

(Continued from Page 21)

on oil-storage depots have been carried out from Norway to southern France. The communiques in the 3-month period listed 52 attacks on oil depots in Germany, 17 in France, 12 in Holland, 6 in Norway, and 3 in Belgium. Probably the most spectacular of such attacks was that reported made on Regensburg, a Danube port in Bavaria. The communique describing this exploit said that Regensburg is an oil-storage center of the Nazi military command for fuel brought up the Danube. It entailed a flight of 675 miles out, the communique said.

It is impossible to gage the full effect of the R.A.F. attacks, since the number of Germany's synthetic plants and their capacity is not known and also because Germany, according to reports prevalent before the war, has been engaged in a very large expansion program for her synthetic industry. It is possible that the addition of new plants, such as that at Brux, have largely offset losses resulting from air attacks. The new Brux hydrogenation plant was scheduled to have a capacity of 5,000,000 tons of coal per year. It is located in the Sudeten area of Czechoslovakia, just east of the Erz Ged Range. It is also known Germany is engaged in a program of constructing additional synthetic gasoline plants in Austria and the Sudetenland, incorporated into the Reich in 1938, which would be far removed from Great Britain.

The view that Great Britain's air war on Germany's oil resources has been effective has been taken by Eugene-Marie Friedwald, former redacteur en chef of Le Revue Petrolifere, who in an article in Petroleum Times said "the Reich production capacity will depend in a very great measure on the success and intensity of the aerial bombing of the R.A.F. Herein lies the great unknown factor which must perplex Germany."

At the conclusion of an exhaustive analysis of Germany's oil position, Mr. Friedwald said: "The Reich posseses sufficient stocks to undertake a continental campaign of the same blitzkrieg type as has been successful in Poland and in France. But the possibilities as to supply would not permit her to sustain such a war for more than 3 to 4 months, and there probably lies the Achilles' heel of the Reich. One cannot repeat too often the fact that shortage of petroleum in the Reich would only be brought about in the case of an offensive of great intensity and long duration—3 to 4 months at the least. On the other hand, by carrying out merely a 'war of nerves' with reduced military operations, the Reich may have sufficient supplies for at least 2 years."

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Industry Seeks Definition of Part In National Defense Program

(Continued from Page 25)

less miles of new oil and gasoline pipe lines; instituted the best conservation practices in oil production, with improved and more economical drilling methods; made marked improvement in the methods of oil finding and extended successful search for oil into new areas, both laterally and in depth; increased employment and improved wages, hours, and other working conditions; maintained excellent labor relations and reasonable stability from an investment standpoint; has continued the operation of marginal or stripper wells in the older producing states including New York, Pennsylvania, Ohio, Illinois, Indiana, Oklahoma, Kansas, and the older fields of Texas; and demonstrated the high degree of flexibility in redistributing restricted production to meet changed conditions due to varying returns of consumption, discovery of new pools and new areas, and changing market demand for different types of products.

In view of the foregoing factual review of present conditions in the oil industry, and tested strictly, and with rigorous accountability, by the standards and objectives set by the National Defense Advisory Commission and the president of the United States, it may be maintained, with confidence, that the oil industry is fully capable, and entirely willing, by voluntary, patriotic cooperation (and without the unnecessary and corroding influence of authoritarian control and compulsion) to achieve the 12 objectives of the Defense Commission program, viz.: Speed in delivery; proper quality; fair price; protection of consumers; fair labor relations; decentralized service as required; financial responsibility on commitments; avoidance of congestion of transportation facilities; adequate power facilities available for the national-defense engagements; obedient respect for "preferences granted to firms having experience with so-called 'educational orders' "; "moral responsibility and honest and sincere desire to cooperate with the Army and Navy in producing what is called for"; competitive bidding.

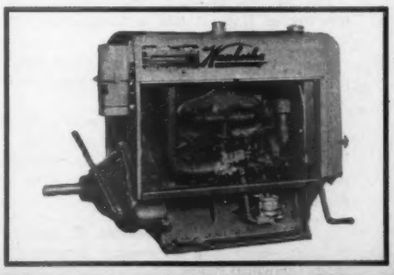
The terms and conditions of service have thus been officially promulgated.

The choice is voluntary service or eventual conscription.

The oil industry, regardless of the alternative, not merely elects, but with enthusiasm and unanimity and patriotic devotion volunteers for service to the nation, for the duration!

Waukesha ENGINES and PARTS

The densely drilled Kilgore townsite.



Portable Rig Company, distributor of Waukesha Engines and Parts throughout Texas and Louisiana, salutes the great East Texas oil field on the occasion of its tenth anniversary.

Our branch store at Kilgore, in the heart of the East Texas field, is adequately stocked with engines and parts to assure you prompt service . . . regardless of your power requirements.

PROGRAMS AND MEETINGS

A.I.M.E. Petroleum Division Meeting In Tulsa, October 24-26

The Petroleum Division of the American Institute of Mining and Metallurgical Engineers will hold its fall meeting October 24-26, in Tulsa at the Mayo Hotel. The 21 papers on the program will cover practical and theoretical phases of the foremost production and engineering problems facing the oil industry.

Chairmen for the meeting, as announced by W. S. Morris, chairman of the national program committee, and P. E. Fitzgerald, chairman of the Mid-Continent section, are: R. S. Knappen, Gulf Oil Corp.; E. A. Stephenson, head of petroleum engineering department of University of Kansas; C. A. Warner, vice president, Houston Oil Co.; Don R. Knowlton, production manager, Phillips Petroleum Co., and Harold Vance, head of petroleum engineering department, Texas A. & M. College.

Directors of the A.I.M.E., national officers of the Petroleum Division, and John R. Suman, vice president of the Humble Oil & Refining Co., who has been nominated for president of the A.I.M.E. for the forthcoming year, will attend the meeting. A special program has been arranged for wives of those attending.

The program follows:

Thursday, October 24

7:30 a.m.—Breakfast meeting for authors, presiding officers of technical sessions of the day, and division officials.

8:30 p.m.—Registration of all members and guests. Registration fee, $2 for all except student associates who will be guests of the Mid-Continent section.

TECHNICAL SESSION

10:00 a.m.—Crystal Ballroom.

R. S. Knappen, chairman (assistant to president, Gulf Oil Corp., Tulsa).

J. U. Teague, cochairman (Humble Oil & Refining Co., Houston).

The Properties of the Silica Surface, by H. K. Livingston, University of Chicago.

Results of Tests to Measure the Compressibility of Oil-Bearing Sandstone Rocks, by C. B. Carpenter and G. B. Spencer, U. S. Bureau of Mines.

Capillary Behavior in Porous Solids (T.P. 1223; Petrol. Tech., Aug.), by M. C. Leverett, Humble Oil & Refining Co.

Some Theoretical Considerations of the Problem of Well Shooting, by H. H. Evinger and Morris Muskat, Gulf Research & Development Co.

TECHNICAL SESSION

2:00 p.m.—Crystal Ballroom.

E. A. Stephenson, chairman (head of petroleum engineering department, University of Kansas).

A. W. Walker, cochairman (assistant chief engineer, Stanolind Oil & Gas Co.).

Retrograde Condensation, by Emby Kaye, Depco, Inc.

Experimental Investigation of the Extraction of Natural Gasoline by Refrigeration, by S. E. Buckley and J. H. Lightfoot, Humble Oil & Refining Co.

Multiple Phase Hydrocarbon Systems, by D. J. Vink, A. M. Ames, R. A. David, and D. L. Katz, University of Michigan.

Equilibrium Constants for Hydrocarbons in Absorption Oil (T.P. 1252), by C. E. Webber, Humble Oil & Refining Co.

Collecting and Examining Subsurface Samples of Petroleum, by Peter Grandone, U. S. Bureau of Mines.

6:30 p.m.—Stag buffet—smoker, Tulsa Club.

Friday, October 25

7:30 a.m.—Breakfast meetings for authors, presiding officers of technical sessions of the day, and division officials.

TECHNICAL SESSION

9:00 a.m.—Crystal Ballroom.

D. R. Knowlton, chairman (production manager, Phillips Petroleum Co.).

W. S. Morris, cochairman (chairman, East Texas Engineering Association).

Practical Application of Optimum Rate Proration, by A. M. Crowell, Arkansas Oil and Gas Commission.

Temperature Surveys in Oil Wells, by C. V. Millikan, Amerada Petroleum Corp.

Sinclair-Moren Pool, Young County, Texas—A Study in Well Spacing (T.P. 1253), by M. G. Cheney, Anzac Oil Co.

Subsurface Engineering in Recovery Problems, by H. R. Pierce, consulting engineer.

12:30 p.m.—Executive committee, Petroleum Division, luncheon meeting.

CALENDAR

NATIONAL STRIPPER WELL ASSOCIATION, Dallas, Tex., October 15.

INDEPENDENT PETROLEUM ASSOCIATION OF AMERICA, eleventh annual meeting, Dallas, Tex., October 16-18.

PETROLEUM DIVISION, A.I.M.E., Los Angeles, Calif., October 17-18.

AMERICAN WELDING SOCIETY, annual meeting in conjunction with National Metal Exposition, Hotel Cleveland, Cleveland, Ohio, October 20-25.

PETROLEUM DIVISION, A.I.M.E., October 24, 25, and 26, Tulsa.

JOHN R. SUMAN
Who has been nominated for president of A.I.M.E.

DAVE HAWTHORNE
Chairman of entertainment committee

P. E. FITZGERALD
Chairman of Mid-Continent section, A.I.M.E.

TECHNICAL SESSION

1:30 p.m.—Crystal Ballroom.

C. A. Warner, chairman (head of land and geology department, Houston Oil Co.).

K. A. Covell, cochairman (assistant division manager, Pure Oil Co., Tulsa).

Trends in Petroleum Engineering Education, by H. H. Power, University of Texas.

The Economic Significance of the First Well, by W. C. Bednar, University of Oklahoma, and M. Gardner, Phillips Petroleum Co.

Friday Evening

The barbecue will be held Friday evening at the Frank Phillips Woolaroc ranch near Bartlesville. All who have registered and their wives are invited to attend as the personal guests of Frank Phillips. Cars will be available for the trip to Woolaroc; point of departure, Mayo Hotel; time to be announced at meeting.

Saturday, October 26

7:30 a.m.—Breakfast meeting for authors, presiding officers of technical sessions of the day, and division officials.

TECHNICAL SESSION

9:00 a.m.—Crystal Ballroom.

Harold Vance, chairman (head of petroleum engineering department, Texas A. & M. College).

P. E. Fitzgerald, cochairman (research geologist, Dowell, Inc., Tulsa).

Petrography of Portland Cement, by Levi S. Brown, Lone Star Cement Corp.

Fineness and Water-Cement Ratio in Relation to Volume and Permeability of Cement, by R. J. Coleman and F. L. Corrigan, University of Texas.

Effect of Temperature and Pressure on the Fluidity Time of Oil-Well Cements, by Sylvan Cromer, Glen Neighbors, and Preston Arnaune, Louisiana State University.

C.N.G.A. Will Meet in Los Angeles, Nov. 1

The program is completed and plans are being formulated for handling an all-time record attendance by natural-gasoline and refinery men at the fifteenth annual fall all-day technical meeting of the California Natural Gasoline Association, according to the joint announcement of L. V. Cassaday, association president, J. B. Taylor, program and fall meeting chairman, and H. E. Leedy, chairman of the entertainment committee.

The Ambassador Hotel, Los Angeles, Calif., has again been selected as the site for the affair and the date has been set for Friday, November 1, 1940. Three big sessions—morning, afternoon, and evening—will be held, with the association's annual banquet climaxing the event in the evening. Attendance is open to all interested persons.

The program follows:

Morning Session

Registration, 8 to 9 a.m.

"C.N.G.A. and Its Accomplishments During Its First 15 Years," L. V. Cassaday, president, C.N.G.A.

"Report of the Technical Committee," M. W. Kibre, General Petroleum Corp., chairman, C.N.G.A. technical committee.

Bulletin report—"Physical Constants of the Components of Natural Gas and Gasoline," D. A. Smith, Tide Water Associated Oil Co.

Bulletin report—"Low-Temperature Fractional Analysis of Natural Gas and Gasoline," Francis Laird, Texas Co.

Bulletin report—"The Chartman's Manual," C. B. Heartwell, Standard Oil Co. of California.

Paper—"Application of Mass Spectrometry to Analyses of Hydrocarbon Gas Mixtures," by research department, United Geophysical Co.

Afternoon Session (2 p.m.)

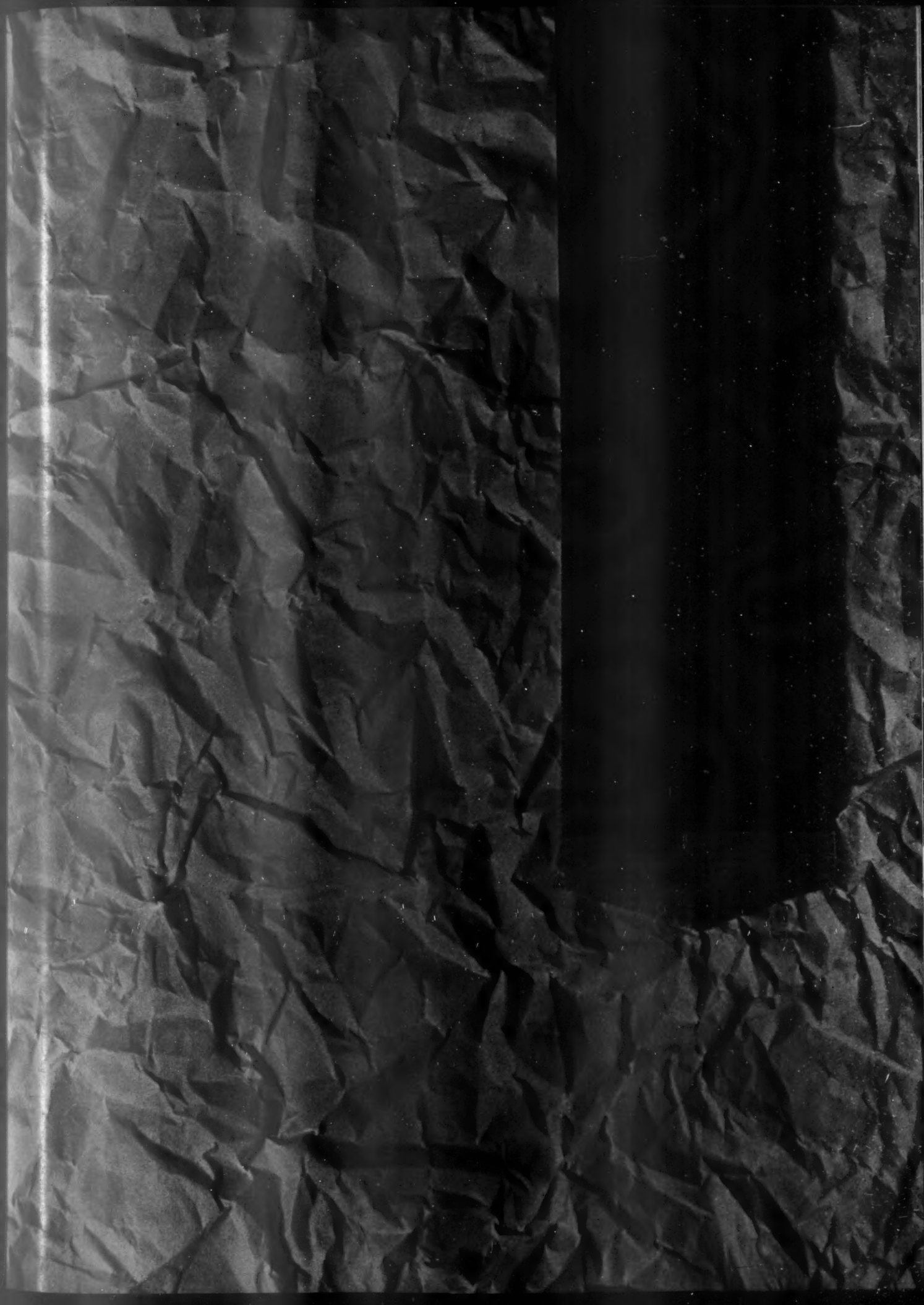
Paper—"Distillate Recovery Systems," Henry N. Wade, Parkhill-Wade.

Paper—"Processes for the Conversion of Light Hydrocarbons to High Antiknock Aviation Fuels," S. H. McAllister, Shell Development Co.

Paper—"Commercial Butanes, a Waste Material, Becomes a Valuable Product," C. E. McCartney, Petrolane, Ltd.

Evening Session (7 p.m.)

Annual C.N.G.A. banquet and show.



Continental's Operations

By E. O. BENNETT
Chief Petroleum Engineer, Continental Oil Co.

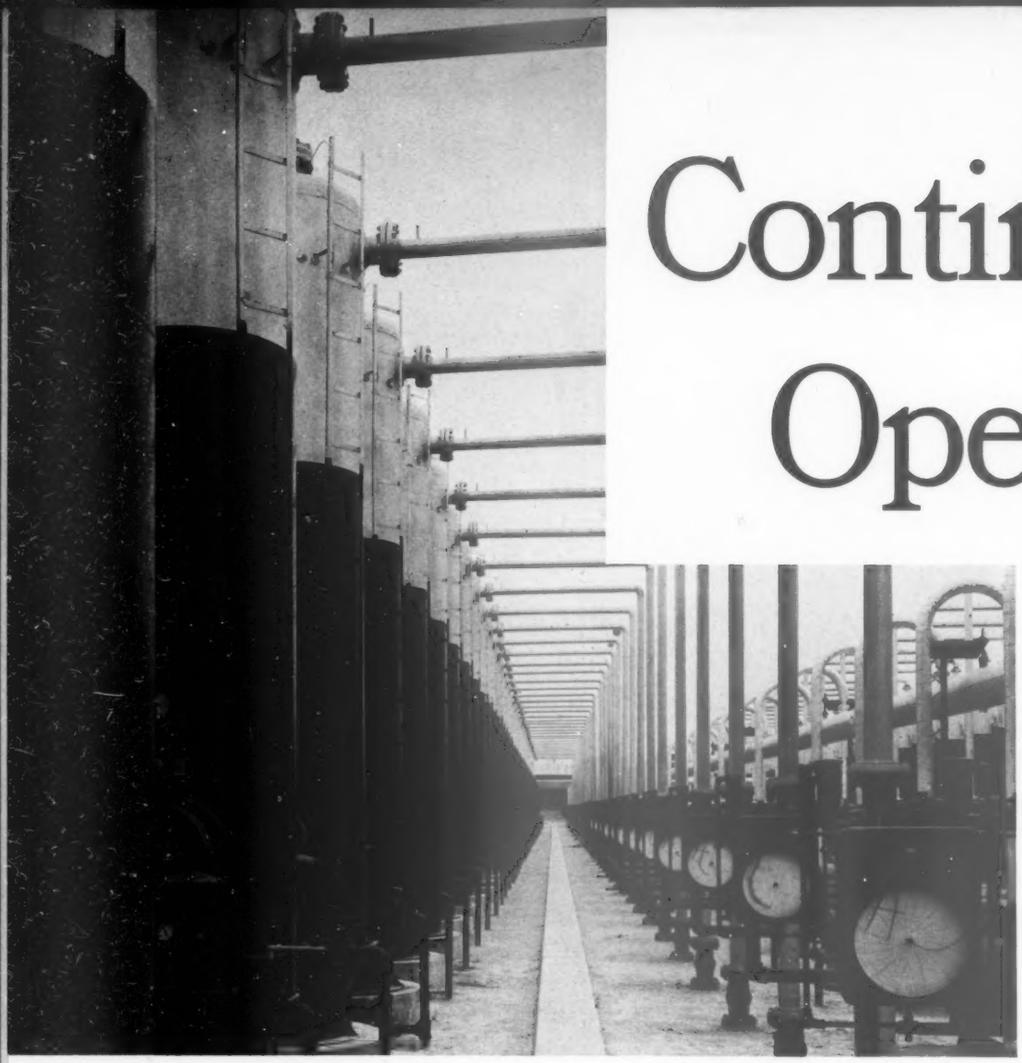


Fig. 1—Orifice meters on high-pressure separator lines

THE Ville Platte oil field is located in the east central section of Evangeline Parish, Louisiana, approximately 3 miles north of the town of Ville Platte.

The field was located by seismograph surveying from January to April 1936. The first well was drilled and completed on September 17, 1937.

The proven areal extent of the field is approximately 3,000 acres, but its limits have not been fully determined up to this time.

Production in the Ville Platte field is from three separate and distinct horizons:

The Haas sand of Sparta (Eocene) age is reached at an average depth of 8,900 ft.

The next sand is the Tate. This is the discovery sand at Ville Platte and is also of Sparta (Eocene) age. It is found at an average depth of 9,020 ft.

The third and lowermost sand is the Wilcox, and is reached at an average depth of 10,150 ft. This is also of Eocene age, and is the second Wilcox producing area discovered in the state, the first being at Eola near Bunkie about 12 miles north of Ville Platte.

The structure at Ville Platte is of the low-relief anticlinical-type, possibly due to a deep-seated salt dome, the dome being several thousand feet below the producing zones. Subsequently the formations were extensively faulted. The faults are of a minor nature, but still are of a magnitude sufficient to isolate sections of the producing zones. In general the fault blocks are upthrown from the center to the edge of the structure. Secondary accumulation in the Wilcox sand has resulted from some of the upthrown blocks near the edge of the structure. The upthrown blocks are also responsible for some variation in water level throughout the field.

Isolation of sections of the pool in the various sands due to faulting is shown by formation pressure variation throughout the pool.

Pressure-maintenance operations become more complex and difficult where such faulting occurs. More input wells are required

General view of Continental Oil Co.'s combination pressure-maintenance, crude

Ville Platte

Serve as Model for Conservation And Maximum Recovery

and care must be taken not to put too much gas in a small isolated block. A block-faulted field is the same as a large number of small pools placed adjacent to each other without communication.

Peg models with subsurface strata as shown by electric logs and cores are very beneficial in working out fault locations. By using a scale base map and suitable vertical scale pegs, the position of fault blocks in three dimensions can be visualized and proper location of input wells determined.

Stabilization and Pressure Maintenance

Field stabilization of high-gravity crudes is essential for the reduction of losses otherwise occasioned by evaporation when such crudes are handled through lease tanks in the conventional manner.

Pressure maintenance, or energy conservation, is essential for the prolongation of the producing life of any flush high-pressure production for the purpose of realizing the greatest ultimate economic recovery.

When gas is returned to a producing zone or gas zone overlying an oil-bearing stratum the effect is to fill space that would otherwise be filled by gas either from the gas zone or out of the oil. By supplying the gas from an extraneous source the existing pressure is maintained or its rate of decline greatly retarded.

In most pools the pressure will decline, even with the return of all available gas. In those pools with an active water drive, either from under the oil or around the flank edges of the pool, the pressure will be more nearly maintained at its original value.

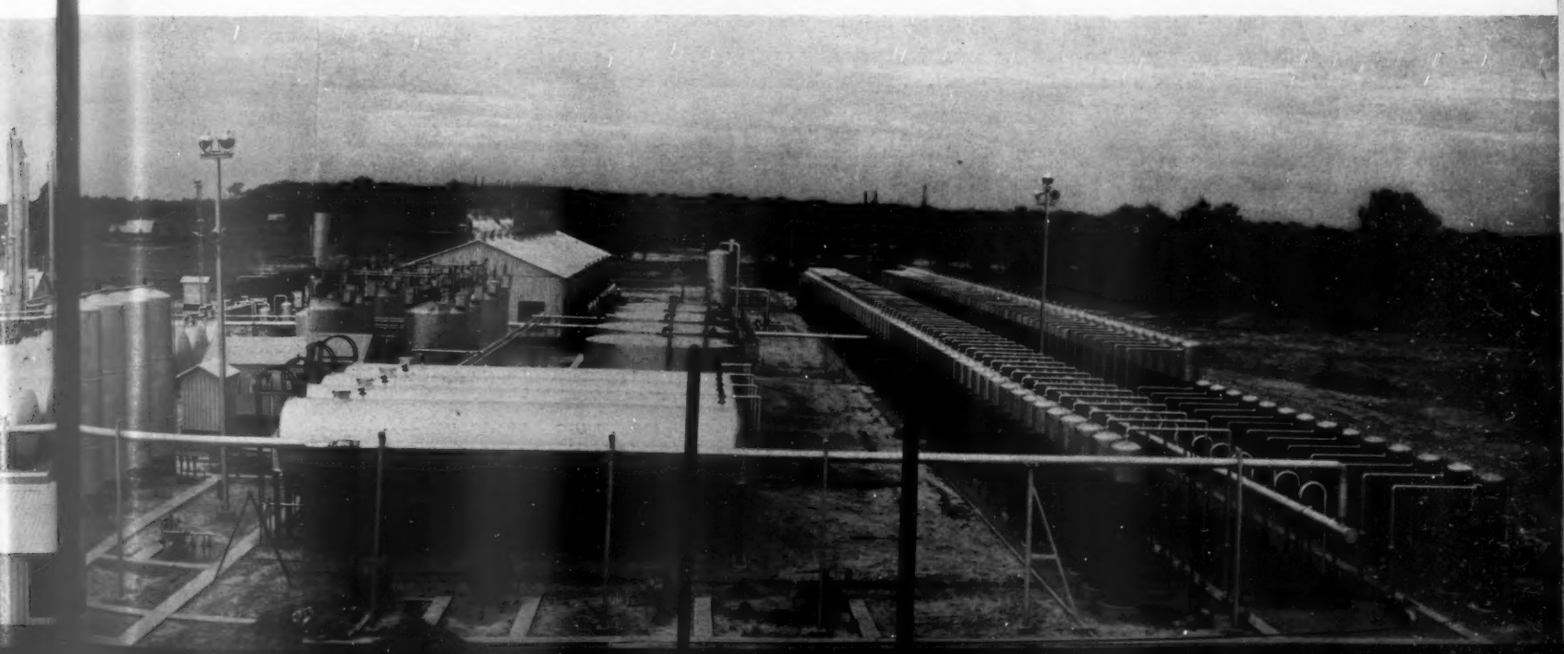
Edge water, which is very detrimental to production as generally practiced, is extremely beneficial to production under a pressure-maintenance system. The result of maintaining pressure is to allow the edge water to encroach gradually on a broad wave front instead of fingering in at wells. The gradual approach of such water forces oil ahead and permits producing oil that would otherwise be trapped between wells and left irrecoverable.

When a pool is underlain with bottom water the maintenance of pressure prevents the rapid upward coning of water at wells, and allows the greatest amount of oil to be recovered with a minimum volume of water to be handled.

If a producing formation is of the distillate type or the combined oil and distillate type such as the upper sand at Ville Platte, it is essential to maintain the pressure to prevent condensation of gas to liquid in the formation. When such subsurface condensation

Typical company-owned home in Ville Platte camp. Weather conditions are conducive to a luxurious growth of flowers and shrubs. Competition in raising them is keen among employes

desalting and gasoline-recovery plant serving the Villa Platte field of Louisiana



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Gasoline Plants

Left: F. B. HAVERFIELD
Assistant Superintendent

takes place the liquid formed wets the sand, otherwise dry, and becomes irrecoverable. When pressures are maintained above the subsurface condensation, or critical range the greatest ultimate recovery will be realized. In addition to permitting the greatest condensate recovery the volume of oil on the structure flanks will also be increased.

Continental Oil Co. a pioneer in both field-stabilization and pressure-maintenance practices has recently completed a combination plant for conducting such operations in its new Ville Platte field.

The field stabilization of light high-gravity crudes may be classified as "controlled weathering" with the recovery of the usable fractions thus liberated. If not separated under control, normal evaporation not only causes a loss of the light ends from the crude, but a mechanical carryover of some of the heavier ends which are normally stable in the crude oil.

Results obtained under pressure-maintenance and field-stabilization operations at Continental's Tepetate field in Acadia Parish, Louisiana, since 1936, furnished data and a basis of design for the type of plant installed at Ville Platte.

The principal differences between the cycle at Tepetate and Ville Platte are in the pressures for metering oil and the manner of depropanizing the crude oil. At Tepetate oil is metered at approximately 450 lb. per sq. in. At Ville Platte it is metered at 40 lb. per sq. in. At Tepetate all oil is run to a common header before being stabilized. At Ville Platte oil from each lease is stabilized and then run to a common header.

Crude-Oil and Gas Measurements

To realize the maximum recovery of hydrocarbon constituents of both oil and gas, it is necessary that their separation and classification be carried out under pressure in a closed system. Such operations require measurement of both the gas and the liquid phases under pressure. This can best be done by meters of suitable design.

In the operating cycle at Ville Platte, all gas and oil are continuously metered—the gas is passed through conventional-type orifice meters, and the oil through positive-displacement meters. Fig. 1 shows the general arrangement of the orifice meters and Fig. 2 shows the installation of oil meters.

One of the principal operating difficulties with meters is normal wear and tear from amorphous sediments in suspension in the oil. The only known filter or strainer that will remove such material is a thick layer of felt. Such filters plug up very rapidly and have not proven practical in operation. Hard-surfaced materials in meters are showing but little wear and long life is obtained. It has been found most practical to use meters without filters. Temperatures of oil being metered must be considered as a paraffin deposition will seriously handicap accurate metering. All oil at Ville Platte is metered at temperatures well above those at which paraffin can deposit.

A complete pressure-metering system for handling oil and gas from producing wells to pipe line eliminates the use of ordinary lease-run tanks. Consequently there are no such tanks in the Ville Platte field. With derricks removed after completion of wells, the only indications of an oil field are the silvery tops of christmas trees which may be seen over and through cotton, corn, and rice fields at various parts of the pool.

Drilling Practice

Continental Oil Co. has instituted several new drilling and completion methods in this and other Gulf Coast operations. Cellars are no longer used there in any drilling operations. Where substructures were formerly 8 ft. high; they are now 14 ft. The surface pipe is set flush with a cement slab laid on the ground. Derrick-corner foundations are below this slab.

In its high-pressure Gulf Coast drilling operations, Continental uses two blowout preventers and a master hydraulic control gate. The 14-ft. substructures provide ample room for this equipment above ground. Cellars in Louisiana operations cost from $800 to $1,200. They are water traps of the first order where rainfall is so plentiful; and to protect christmas trees and well-head con-

(Continued on Page 56)

HANLON H-W WATERS, INC.

H-W Type 771 Pressure Control, one of many installations of HANLON-WATERS Automatic Control Equipment handling control problems at this Continental Plant.

AUTOMATIC CONTROL EQUIPMENT

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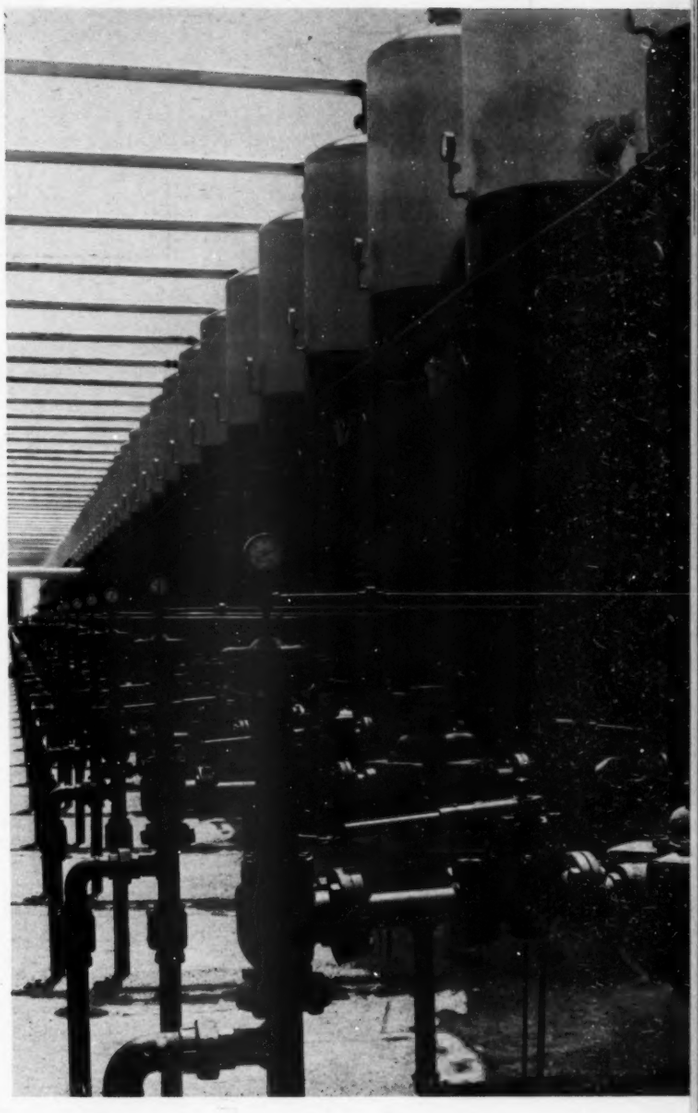

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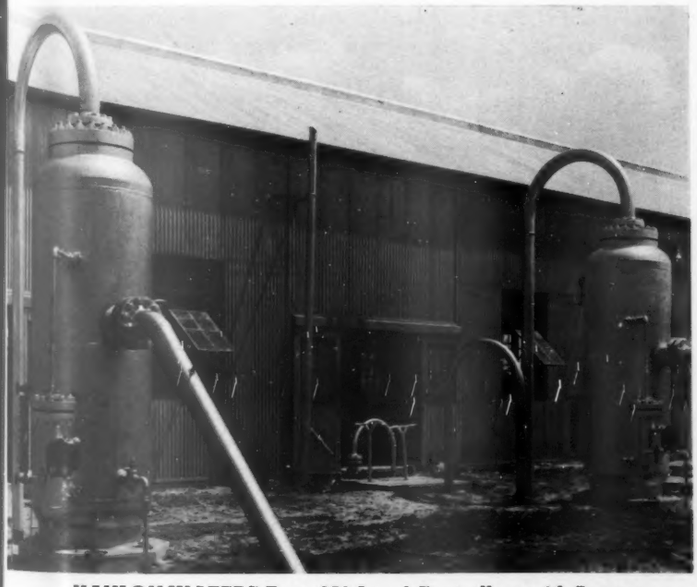

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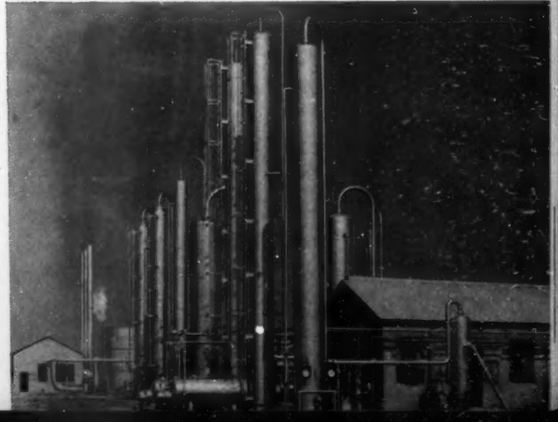

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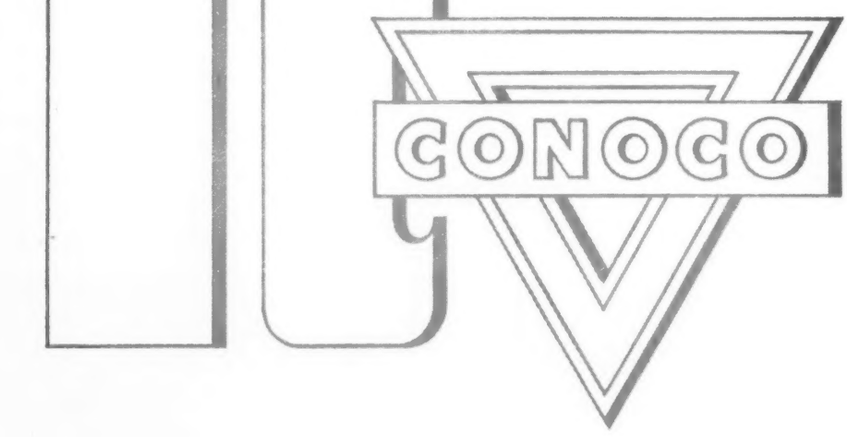

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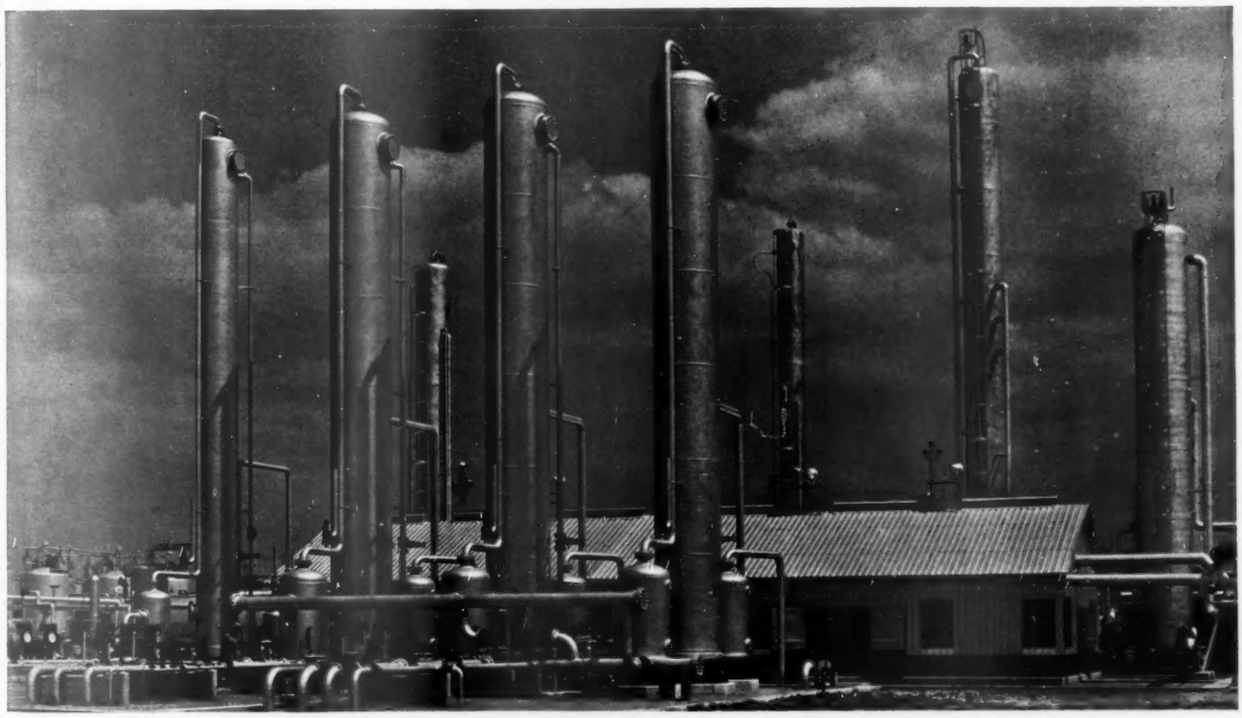
CONTINENTAL OIL COMPANY'S PRESSURE MAINTENANCE, GASOLINE RECOVERY, CRUDE DESALTING AND STABILIZATION PLANT AT VILLE PLATTE, LOUISIANA



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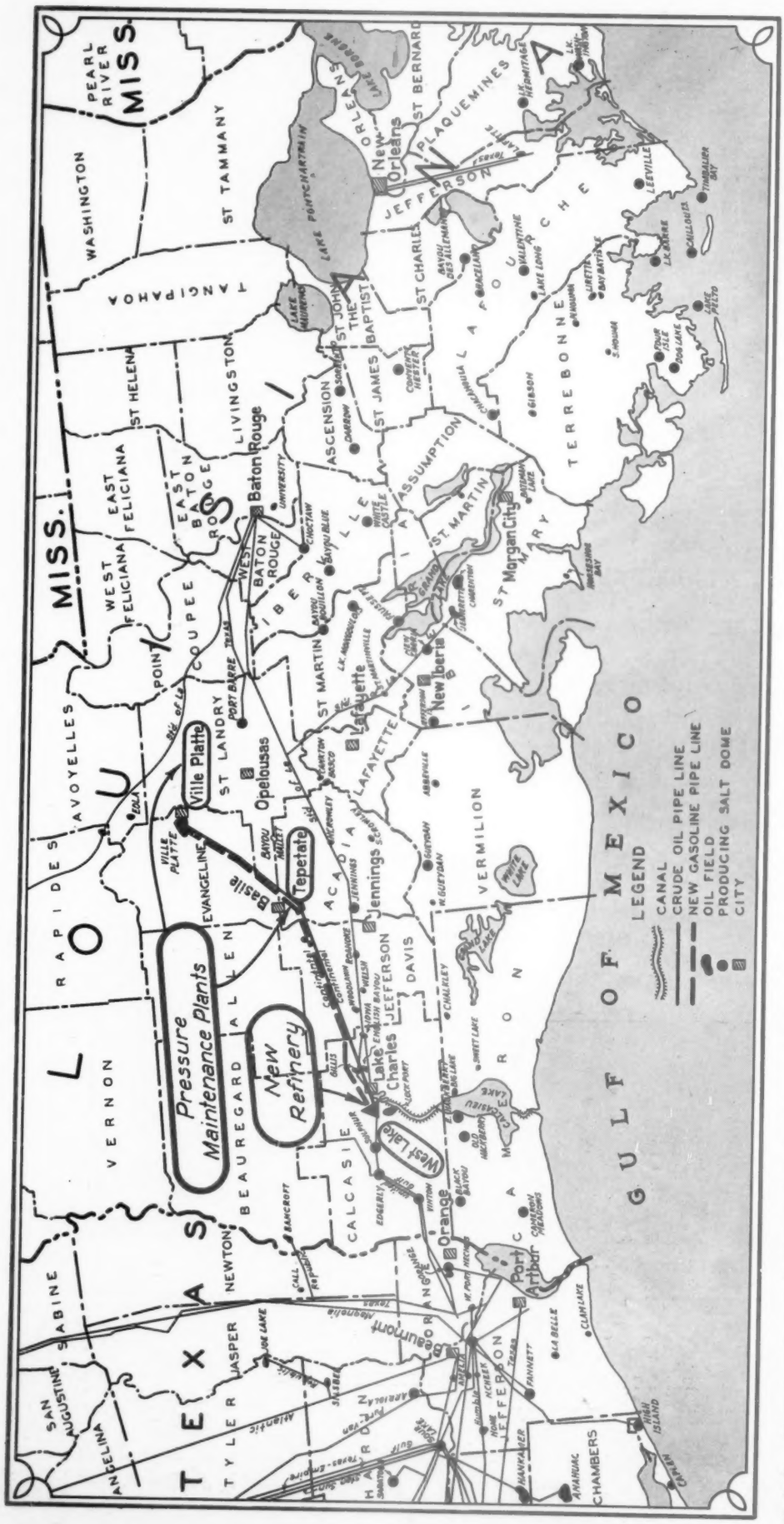


nections in cellars, such water must be repeatediy removed at much expense. Water in cellars also necessitates frequent painting of manifolds for the prevention of corrosion.

High substructures as shown in Fig. 3 greatly facilitate the running of casing and the handling of drill pipe. In effect, such a substructure is equivalent to increasing the height of the pipe window in the derrick, making a smaller angle between the pipe being hauled in, and the side of the derrick. This is very advantageous with double-length pipe now generally used. Fig. 4 shows effect of high substructure on pulling in pipe.

All drilling crews who have worked on high-substructure rigs prefer them to the standard-height substructure and cellar. The few more steps which must be climbed to reach the derrick floor has not been objectionable. Well-drilling control equipment is readily assembled and inspected.

High substructures make the installation of a christmas tree a very simple job. Flanged-joint trees are used on all wells at Ville Platte and no rotation of tree parts is necessary for assembly. Extensions to control-valve handles are easily extended to the outside of the substructure.

A small trough is provided for conducting drilling mud to pits while drilling. This trough may be filled when the well is completed. The quantity of material needed is comparatively small.

Anchor bolts are left in position on completed wells for use in case of a workover job during the latter life of the pool.

In the case of connection failure, all joints and connections are aboveground where they are easily accessible for repairs. Danger of fire from oil or gas in a cellar is entirely eliminated. Freedom from asphyxiation in cellars in sour-gas areas is obtained under this program. When the industry realizes the safety, and savings of drilling without cellars, it is believed that such practice will be generally adopted. The best that can be said for cellars is that they are a "carryover" from cable-tool days where casing was supported on a swinging spider. Certainly the use of cellars is not in keeping with modern drilling practices. Derricks of 136-ft. height with 30-ft. bases have been used in all of Continental's Gulf Coast drilling operations. The additional floor space, over smaller derricks, increases the safety in all drilling operations by providing ample room for good housekeeping. Some of these derricks have been used to drill 20, or more, wells. The only replacements having been some new bolts, nuts, and washers. Continuous use of derricks is made possible by using solid, level footings at all times. Such footings are a prerequisite for good drilling practice.

All of the Ville Platte drilling has been done on a contract basis, as the company does not operate its own drilling equipment on the Gulf Coast. With a large develop-

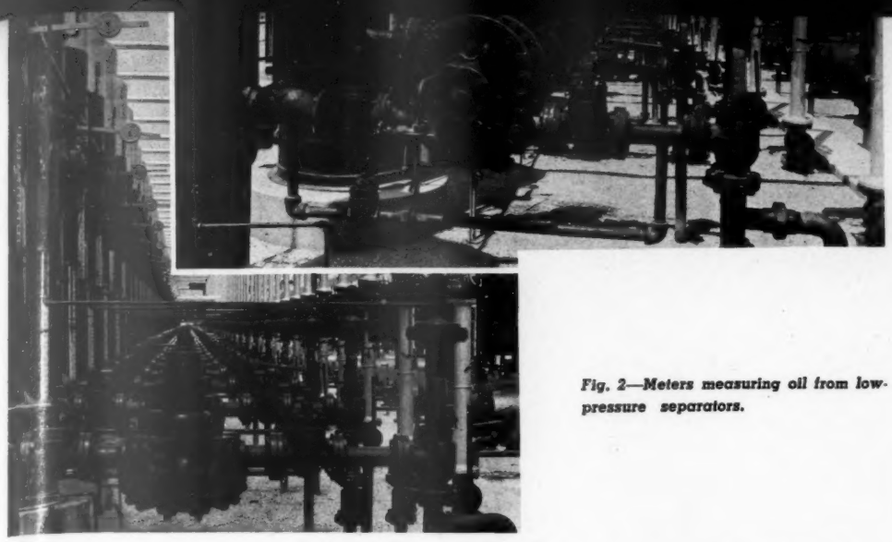


Fig. 2—Meters measuring oil from low-pressure separators.

ment program, derricks are erected in advance to take care of the number of drilling rigs running. This permits a contractor to move from a completed well to a new location without delay and at a minimum of expense. At the present time, Continental keeps eight drilling rigs running at Ville Platte. Well completions in the pool now number 140.

Drilling Time

Extremely fast time is made in drilling at Ville Platte. Pipe has been set in the Tate sand at 9,100 ft. in 17 days and in the Wilcox at 10,200 ft. in 29 days. This time includes rigging up and cementing of two strings of casing for each well. The formations are soft with but slight exceptions, and only a few rock bits are required per well.

Surveys for deviation of well bore are frequently made and no difficulty is experienced in drilling vertical holes. The hole for the 10¾-in. surface pipe is drilled with a 13¾-in. bit. Surface pipe is set below all water strata at 1,250 ft., and is cemented back to the well head. The oil string is 6-in. o.d. pipe which is set to total depth. This pipe is set in a hole drilled with a 9⅞-in. bit and cemented with the full-hole cementer method with approximately 500 sacks of cement.

The oil string of casing is 6-in. o.d. Both weight and grade of pipe are varied in a single string to give ample factors of safety against failure in tension and collapse.

Cementing is not considered as giving any aid against collapse. The lowest factor of safety used is 1.65 in collapse based on minimum values and 2 for tension.

Cementing Operation

Practically all of Continental's wells have been completed without screens. Screens are not considered necessary if differential pressures between the formation and the inside of the casing are controlled. Such control may be exercised by a careful study of bottom-hole or formation pressures. No particular difficulties in producing have been encountered over several years where wells have been completed without screens. There is a general tendency by most operators to open up too much of a sand section, thereby increasing the chances of causing a well to produce with either a high gas-oil ratio, or an excessive amount of water.

The amount of perforated area in the oil string at Ville Platte is kept as small as possible and is located midway between bottom-water and upper-gas contact. Oil entering at this position causes a minimum coning down of the gas cap and minimum coning up of water.

Wells are seldom produced through chokes in excess of ¼-in. diameter. The area of such a choke is but 0.049 sq. in. It is obvious that many square feet of pipe openings are not required for entrance of oil that can only escape through the 0.049-sq. in. opening at the well head. The oil and gas entering the well occupy less volume than the same quantities do at the well head on account of the difference in pressure.

The proper amount and position of oil-entrance ports are determined by study of electric logs and core analyses. The porosity and lateral permeability have much to do with the above factors.

Slotted pipe is run on the bottom of the casing with the size, position, and amount of slots designed from data furnished by electric-log and core-analysis records. The slotted pipe is equipped with a float shoe at its lower end and a cement lining is spun and set inside the slotted section. This cement lining is for the purpose of sealing the perforations to permit washing to bottom while running the casing. Immediately above the top of the producing section a full-hole cementer collar is installed. When the pipe has been run to the desired depth, a bottom cement plug is inserted. This plug opens the cementing ports, but prevents cement from going below it and out the casing float shoe. After the desired quantity of cement has been pumped in place and set, the two plugs and cement lining in the slotted section are drilled out. The float shoe and valve are left intact. No cement has, at any time, been placed opposite the producing-sand section, as the cement moves upwards when leaving the full-hole ports. It is believed—and proven by practice—that by not having the sand face covered with cement, the most satisfactory type of completions are made. Wall scrapers are run on the slotted section of casing to remove mud cake which may be on the sand face.

The maximum effective pore space is

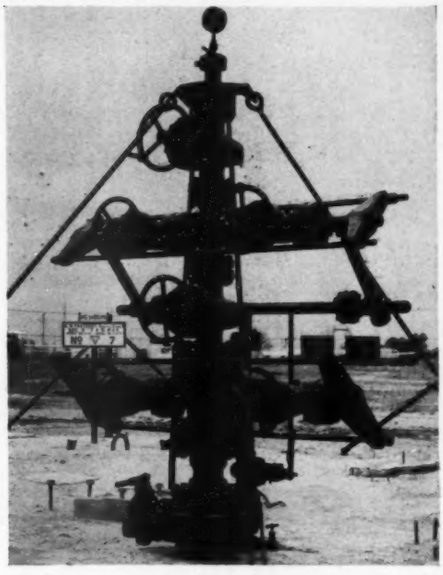


Fig. 5—Completed well showing christmas tree but no cellar

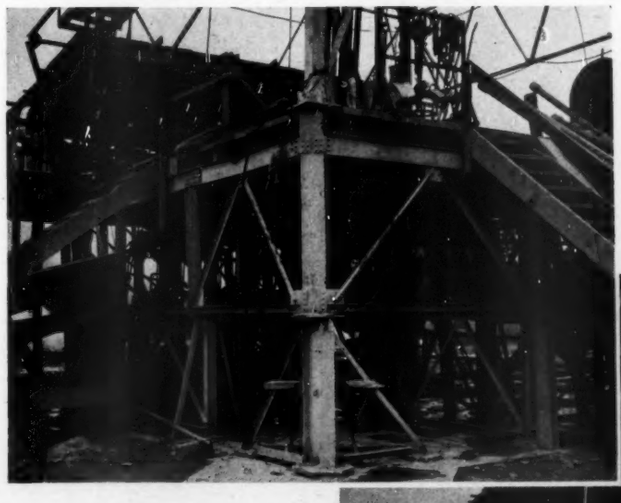
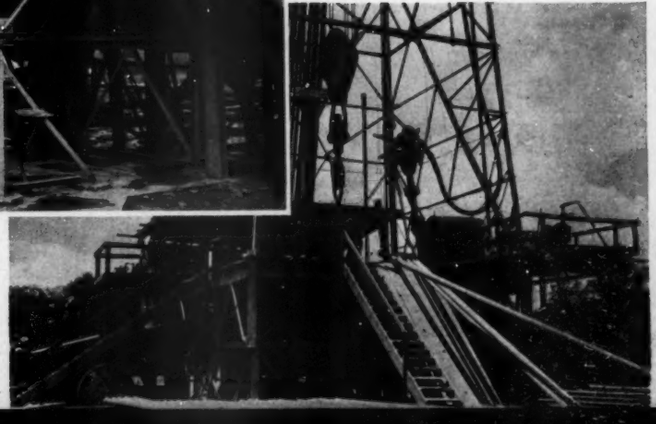
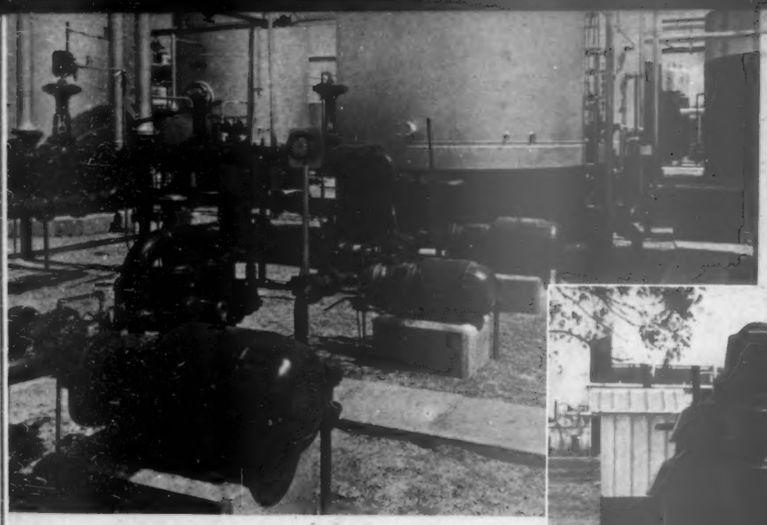


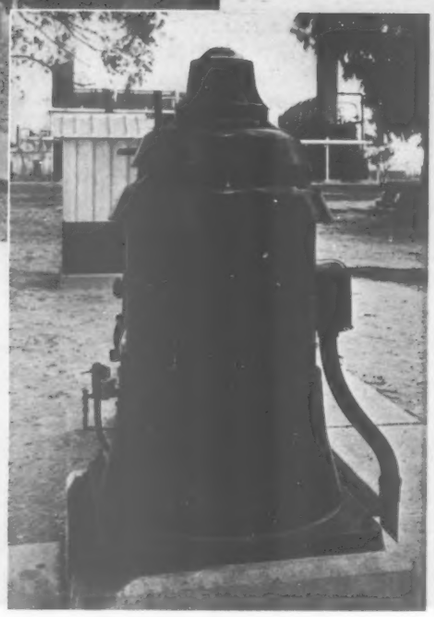
Fig. 3 (Left): High substructures—no cellars

Fig. 4 (Below): Method used for pulling up pipe. High substructure gives effect of larger window





At the VILLE PLATTE Plant o CONTINENTAL OIL COMPAN



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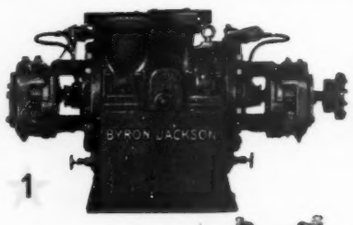

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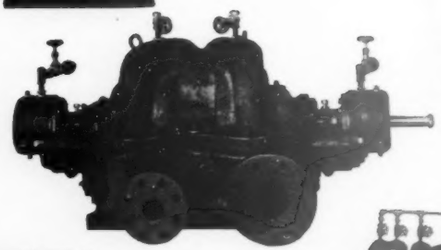

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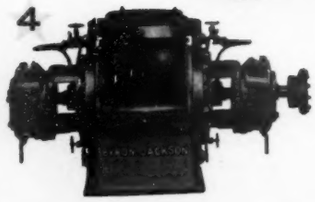

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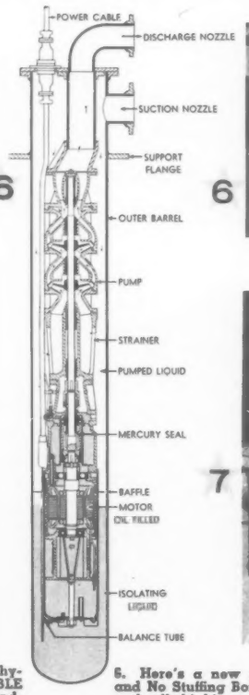

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Fig. 6—End view of separator battery

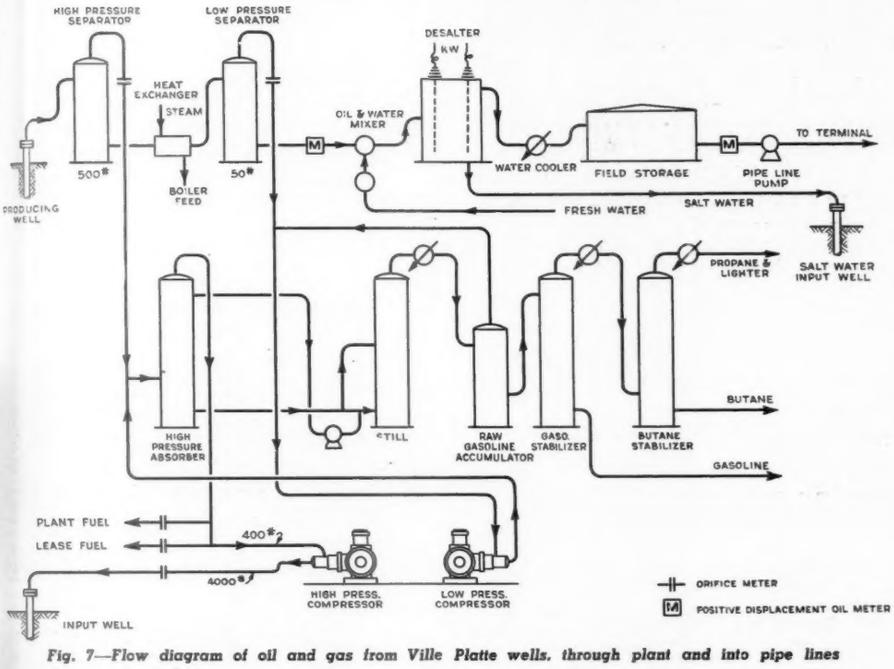

Fig. 7—Flow diagram of oil and gas from Ville Platte wells, through plant and into pipe lines

opened to the drainage of oil into the well and the wells are readily cleaned when washing in. Gun perforations are used for remedial workover jobs, but not for initial completions.

With perforated pipe run on the casing, positive location of casing openings is at all times definitely assured. Christmas trees in use at Ville Platte are of simple design. The 10¾-in. 35.75-lb. surface pipe head is set just above the cement floor. No connections are below this elevation.

Christmas Trees

The oil string consisting of 6-in. o.d. pipe is supported by slips in the head, which is screwed to the surface pipe. The tubing head is flanged to the casing head and the tubing is supported and packed off by a "boll weevil" plug. The master gate used has unequal flanges. A 6-in. lower flange and a 3-in. upper flange are used. A cross is flanged to the top of the master gate and a two-wing manifold with a positive choke in each side is used. All flanged joints are used with iron ring gaskets. No screwed connections are used on any high-pressure christmas trees. Field-line connections at christmas trees are made with slip-type welding fittings, as rapid fabrication is possible with them. Fig. 5 shows a christmas tree on a completed well drilled without a cellar.

Fixed chokes are used. They consist of suitable sizes of straight-bore holes through alloy-steel plugs of suitable composition. Coarse-threaded bonnet-union connections with ring-gasket seals are used in place of the customary threaded bull plugs to close the ends of choke bodies. One man can readily remove the bonnet and replace the choke in a few minutes.

Field Pipe Lines

All of the wells in a single sand on one lease are connected into a common flow line. This extends from the lease to the separator-battery yard.

Where two or more sands underlie the same lease, separate flow lines are used for the wells from each sand or producing zone. Oil and gas from wells in a common sand flow together to the central recovery and pressure-maintenance plant. The flow lines are directly connected to the individual wells. All lines are of seamless steel tubing of sufficient strength to stand shut-in wellhead pressures with adequate factors of safety. In an emergency, the wells on any lease may be shut in at the high-pressure separator battery in the plant yard.

The Ville Platte field control is concen-

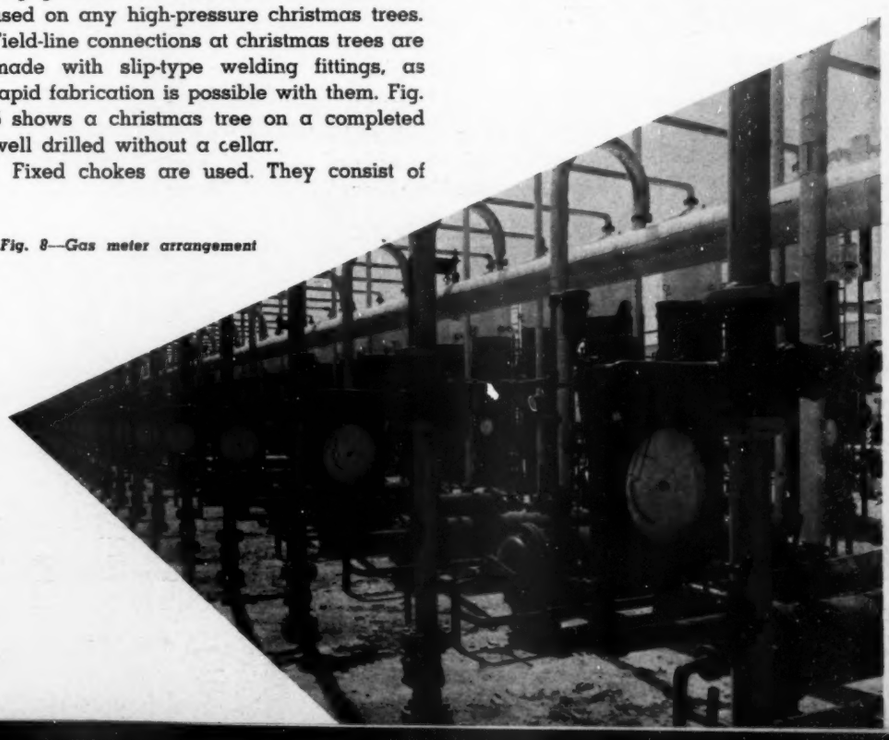

Fig. 8—Gas meter arrangement

trated at the plant site. The only operations in the field, outside of the plant yard are those of occasionally changing choke sizes at wells. In the plant yard there are pairs of separators for each producing zone under each lease. At the present time there are 68 each of the high and low-pressure types as part of the control setup. This is believed to be the world's largest assembly of separators in a single battery. Fig. 6 shows the general arrangement and grouping of these units.

From any lease the field flow line enters a high-pressure separator which operates at approximately 500 lb. per sq. in. Gas from this separator is measured through an orifice meter. The orifice plates for all separator gas meters are installed in a vertical run of pipe instead of in the customary horizontal run. Fig. 8 shows a view of the meter installations at Ville Platte. Gas, after being measured, passes into a common header which takes high-pressure gas from all leases and from all producing zones.

This high-pressure gas goes through a scrubber and then to a high-pressure absorber operating at 500 lb. per sq. in. The residue from the high-pressure absorber goes to the intake manifold of the pressure-maintenance plant. In this plant the high-pressure residue is compressed to sufficient pressure to return it to the various producing zones and in proportion to their respective output. Fig. 7 shows a general flow diagram of the field and plant.

The permeabilities in the producing zones of the Ville Platte field are somewhat lower than at Tepetate. This fact and the nonexistence of a free gas cap have made injection pressures higher than normally required for the existing formation pressures.

The headers at the plant are divided so that different discharge pressures may be used at different parts of the field or in separate sands without the necessity of carrying the maximum working pressure on all machines. This permits of handling a maximum volume at all times.

Present installed horsepower is suitable for returning 60,000,000 cu. ft. of free gas per day at pressures up to 4,000 lb. per sq. in. An addition of 1,000 hp. to the 8,400 now installed is planned on account of increased development.

Oil from the high-pressure lease separators passes through thermostatically controlled, steam-heated exchangers on the way to low-pressure separators which operate at approximately 40 lb. The steam heaters used are unique in that steel tubes are welded into rigid heads. No difficulties have been encountered. Welding of tubes was decided upon after much difficulty was experienced with rolled tubes. Steam from the heat exchangers is condensed to boiler-feed water. By reducing the pressure of the heated oil the light ends which are normally lost by evaporation are flashed off overhead, measured, and then recompressed and pumped through the high-pressure absorber. Approximately 50 per cent of the vapors that would otherwise be lost are recovered through the gasoline plant as a stable product. This saving gives a greater overall recovery than is possible with normal lease-separator and run-tank installations.

Leases Credited

The gasoline content of both the high-pressure and low-pressure gases are determined. With the known volume and content of the gas, the recovered products are credited to the leases from which they were produced.

The system of handling both oil and gas at Ville Platte provides a means of determining the gas-oil ratios of all leases and producing formations at all times. Spot checks are readily made of any individual well whenever necessary without changing any connections. For such checks all wells on a lease, except the one being tested are shut in. The oil and gas from the well under test are accurately measured for any desired duration of time.

The fat oil from the high-pressure absorber is carried to a still. The overhead from the still goes through an accumulator and from there is charged to the primary stabilizer. Gasoline is recovered from the bottom of the secondary unit, while propane and lighter products are taken off from the top. The residue products are used as boiler and

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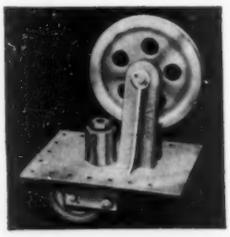
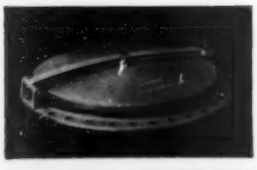
"VAREC" *Approved* TANK EQUIPMENT WAS SPECIFIED and INSTALLED IN THE Continental Oil Company's Gasoline Recovery, Field Stabilization, Repressuring Plant at Ville Platte, Louisiana.

Actual Photo of "VAREC" Conservation Vent Unit at Ville Platte, Louisiana.





A SALUTE TO CONTINENTAL OIL COMPANY

When the Gasoline Recovery, Field Stabilization, Repressuring Plant at Ville Platte, Louisiana, was designed and built, Continental Oil Company specified and installed "VAREC" Approved Tank Equipment for EFFICIENCY, RELIABILITY, PERFORMANCE, SERVICE, and PERMANENCY. We feel honored that our products are part of the vast plant at Ville Platte, Louisiana, the largest of its kind in the world, and know the equipment will perform with SAFETY and ECONOMY.

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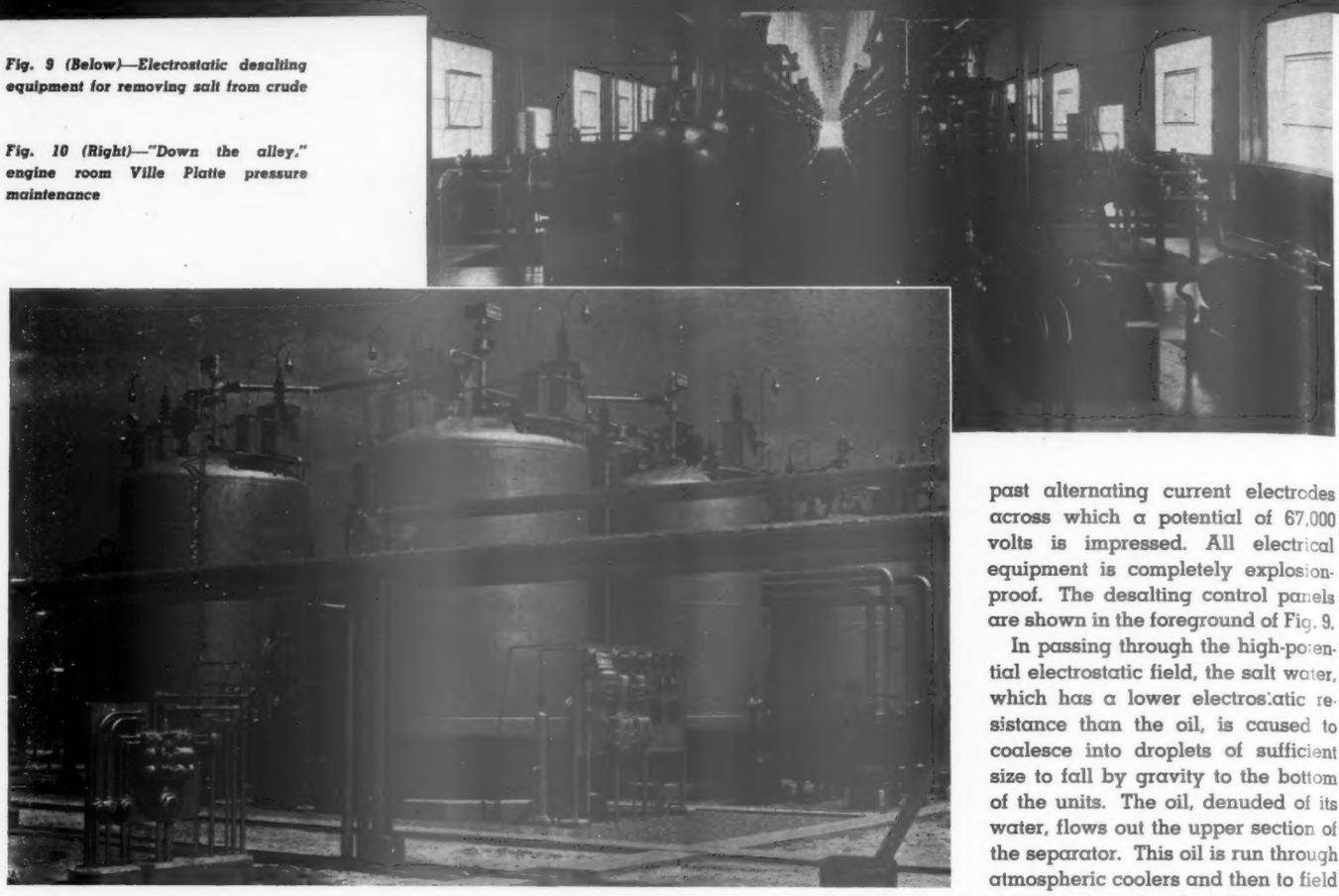
Fig. 9 (Below)—Electrostatic desalting equipment for removing salt from crude

Fig. 10 (Right)—"Down the alley," engine room Ville Platte pressure maintenance



plant fuel and are supplemented by dry residue gas.

Metering Production

Oil from the low-pressure lease separators is metered, each lease having a separate meter. After metering, the oil is run to a common header. The meters are compensated for temperature, and read the volumes passing corrected to 60° F. No corrections for gas in solution in the oil are necessary as the low pressure at the existing temperature exclude any gas retained in solution. Meters are installed so that they can be readily checked at all times. A meter-test shop is established at the plant for the purpose of keeping meters in precise calibration at all times. The meter-testing equipment consists of accurately calibrated tanks and pumps for circulating exact quantities of oil through the meters. Master meters are also used for check purposes. Fig. 2 shows the general arrangement of oil meters adjacent to the low-pressure separators. Included here is a long line of Pittsburgh piston-type and Bassler meters.

Desalting the Crude

Oil from the common mixed stream next goes through electrostatic desalting units. Most Louisiana crudes carry salt in varying quantities—often as high as 3,000 g. per barrel. Fig. 9 shows the battery of desalters at Ville Platte.

Crude of high salt content causes many difficulties in refining operations and it has been found advisable to denude the crude to a salt content not exceeding 10 g. per barrel. Oil with this small quantity of salt gives no trouble while being processed. Hot fresh water is mixed into the crude through special mixing devices. Water up to 10 per cent of the total volume of crude is mixed into the oil stream. This hot, fresh water dissolves the salt in the crude. The combined mixture of crude and water is next flowed past alternating current electrodes across which a potential of 67,000 volts is impressed. All electrical equipment is completely explosion-proof. The desalting control panels are shown in the foreground of Fig. 9.

In passing through the high-potential electrostatic field, the salt water, which has a lower electrostatic resistance than the oil, is caused to coalesce into droplets of sufficient size to fall by gravity to the bottom of the units. The oil, denuded of its water, flows out the upper section of the separator. This oil is run through atmospheric coolers and then to field storage where it is handled by pipe line to Continental's marine terminal and new refinery now under construction at Lake Charles.

The salt solution taken from the bottom of the desalting apparatus is pumped into a disposal well. In cases where the salt content of the crude is exceedingly high, it is sometimes necessary to use a chemical treatment in addition to the fresh wash water. In such cases the compound is injected into the flow stream from the meters and the oil is passed through settling tanks before going to the fresh-water mixer where much of the salt and salt water is precipitated and removed. Where the paraffin content of the crude is high, the voltage required increases rapidly. Higher voltages call for more elaborate insulation, but do not impede the operation. Obviously these high-voltage operations are only carried out by those thoroughly familiar with the hazards involved.

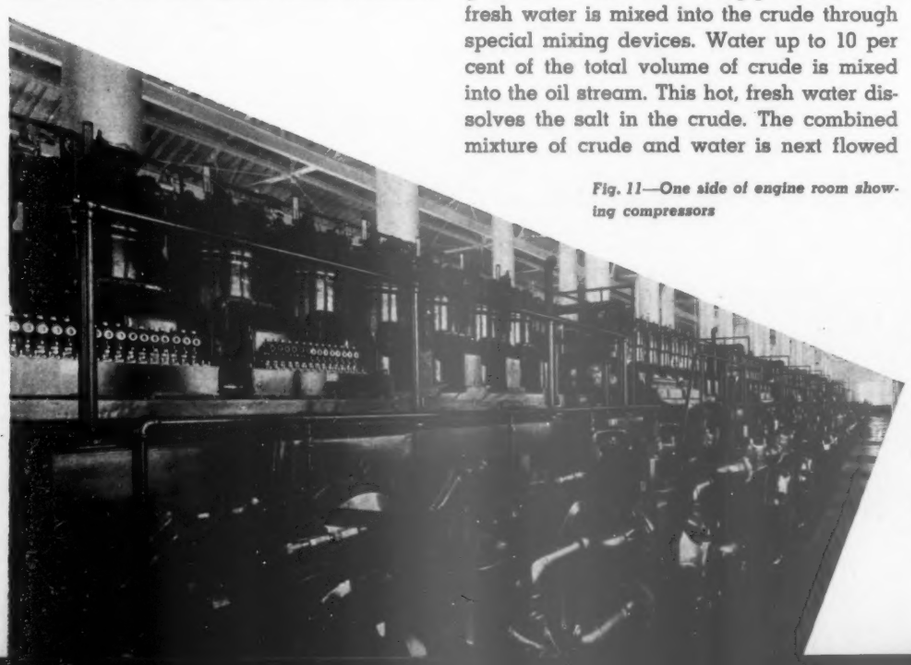


Fig. 11—One side of engine room showing compressors

Compressor Plant

The pressure-maintenance plant at Ville Platte produces more available power than any single oil-field operation in the world. At the present time 8,400 hp. are installed. This is supplied by engines of 100 and 125 hp. per cylinder when operating at 300 r.p.m.

The general arrangement places the engines back to back with intake and discharge headers at each side of the plant and looped around one end. The back-to-back arrangement for machinery in large plants has been generally adopted by Continental in its pressure-maintenance operations, as it places the machinery in a more compact area and permits better supervision and in-

spection. Fig. 10 shows a view down the alley in the Ville Platte engine room. Fig. 11 shows a view down the compressor side of one row of units.

Ample room is also left between machines. Reverse rotation of units tends to damp pulsation vibrations. An important feature of high-pressure compressor-plant design is adequate ventilation and the minimizing of possible leakage within the compressor room. To accomplish this, the engine-room floor is raised above the normal outside grade and all piping is above ground. All pipe ducts to and from the compressor cylinders are covered with open grating of a safety-tread type.

Forced-draft fans are placed in the rotating-type roof ventilators. These fans are driven by explosionproof direct-connected motors and remove many thousand cubic feet of hot air per minute from under the roof. This permits cooler air to enter at the floor level and cools the entire engine room.

All exhaust stacks are fitted with insulated jackets through which cold air circulates. Mufflers with low back-pressure characteristics are used for exhaust silencing and the plant with 8,400 hp. in operation is very quiet.

No valves or fittings are installed on intake or discharge lines within the walls of the building. All lines from compressors to headers are equipped with half loops, and all headers are securely anchored in a manner such that vibration is retarded, but motion due to temperature expansion is permitted. Fig. 12 shows the method of anchoring headers.

Welding of Heavy Pipe

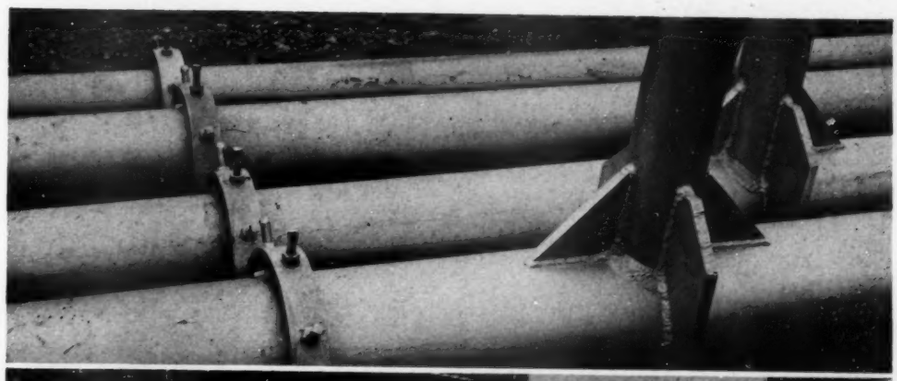
There are many sections of heavy-walled pipe used in a compressor plant where normal discharge pressures as high as 4,000 lb. per sq. in. exist. Some of the pipe has a wall thickness of ¾ in. Care must be used in providing pipe of proper material so that welding can be satisfactorily accomplished. High carbon content and various alloys are detrimental to good welding.

Welding on thick pipe can best be done with several beads. Four to six welding beads on the heaviest pipe makes a good joint. Each bead or layer applied anneals the previous weld and assures a stronger joint.

Gusset reinforcing plates are used where lines which operate under variable temperatures tie into discharge headers. Creep stresses enter the system due to temperature changes. They are almost impossible to determine in a fabricated layout. Some operators use flanges over welds for reinforcing. Gusset plates offer more rigidity and permit inspection of the main weld which is hidden by flanged reinforcing.

Fig. 13 shows the general type of construction used by Continental in its high-pressure work.

All high-pressure piping should be tested with cold water up to a pressure at least 200 per cent of the normally expected working pressure. It is very important to remove all air from the system before applying the cold-water test. Any air traps in a pipe system will store up a large volume of energy under pressure and in the event of a con-



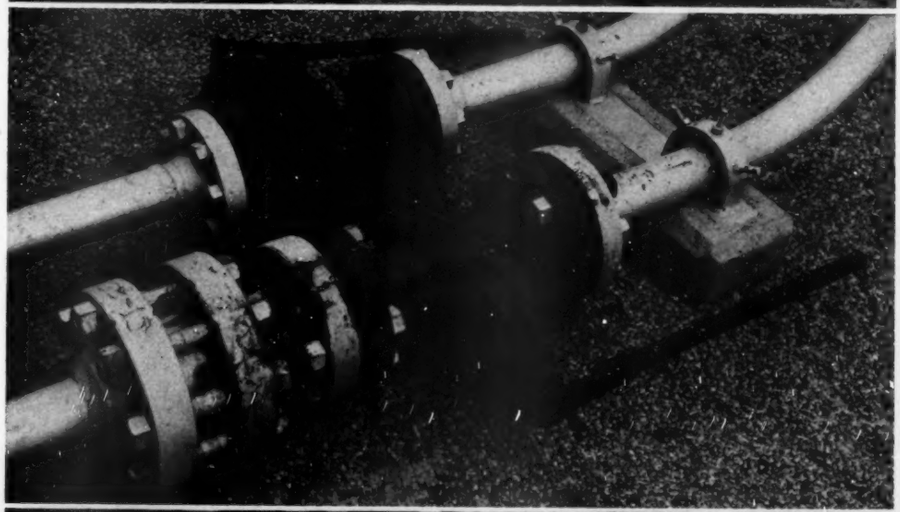


Fig. 12—Method of anchoring headers and reinforcing welding

Fig. 13—General construction, high-pressure piping

Fig 14—Shutoff plug and check-valve arrangement

Fig. 15—Air cleaners and walkways at compressor plant

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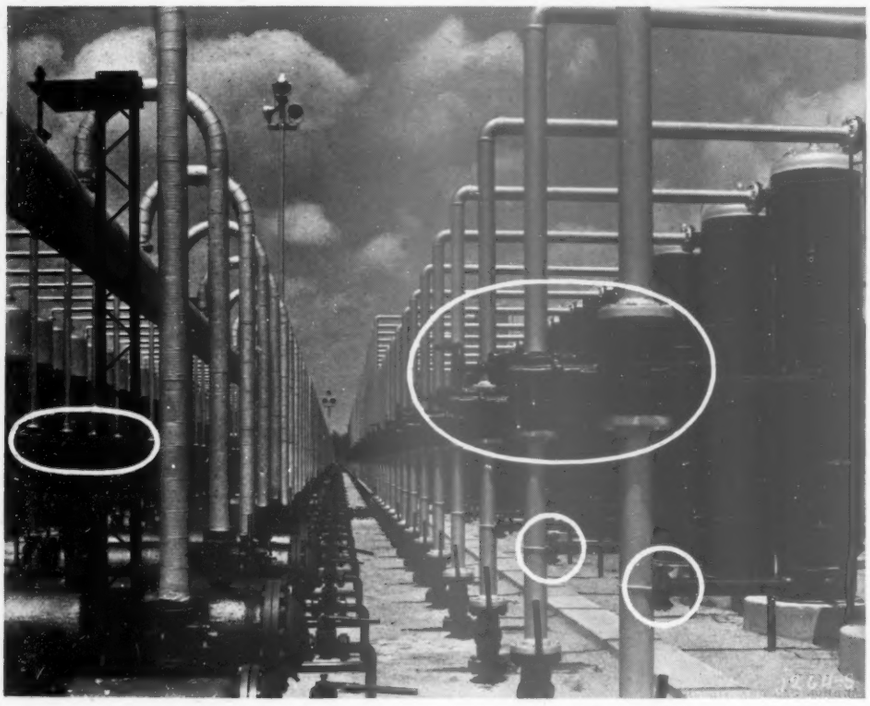
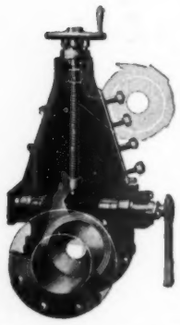


CONTINENTAL OIL COMPANY'S

Field stabilization, gasoline recovery and pressure maintenance plant at Villa Platte, Louisiana.



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The Robinson Meter Leveling Saddle permits accurate leveling over a fourteen degree angle.

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nection failure under test the sudden release of such energy can do much damage. The drilling, or burning, of a small hole at high points in the piping system is a satisfactory method of relieving air pockets. Such small holes may be closed by welding when all air has been removed.

Valves and Safety Devices

All valves used in Continental's pressure plants are of the lubricated-plug type. Lubrication is carried out with a high-pressure hydraulic grease gun and suitable fittings—saving much time over conventional grease-plug injection. Check valves are installed on all discharge lines between compressors and headers. This is for safety in the event of a discharge-line failure inside the building. The checks will prevent the back flow of high-pressure gas into the room. Check valves and shutoff-plug cocks are also shown in Fig. 14.

Magneto short-circuiting devices to shut down all engines are provided for emergency stops. Additional short-circuiting switches are provided at several convenient locations. Liquid-level-controlled stop devices are installed at compressor intake scrubbers to prevent accidental damage to compressors in the event of a carryover of absorption oil from the gasoline plant.

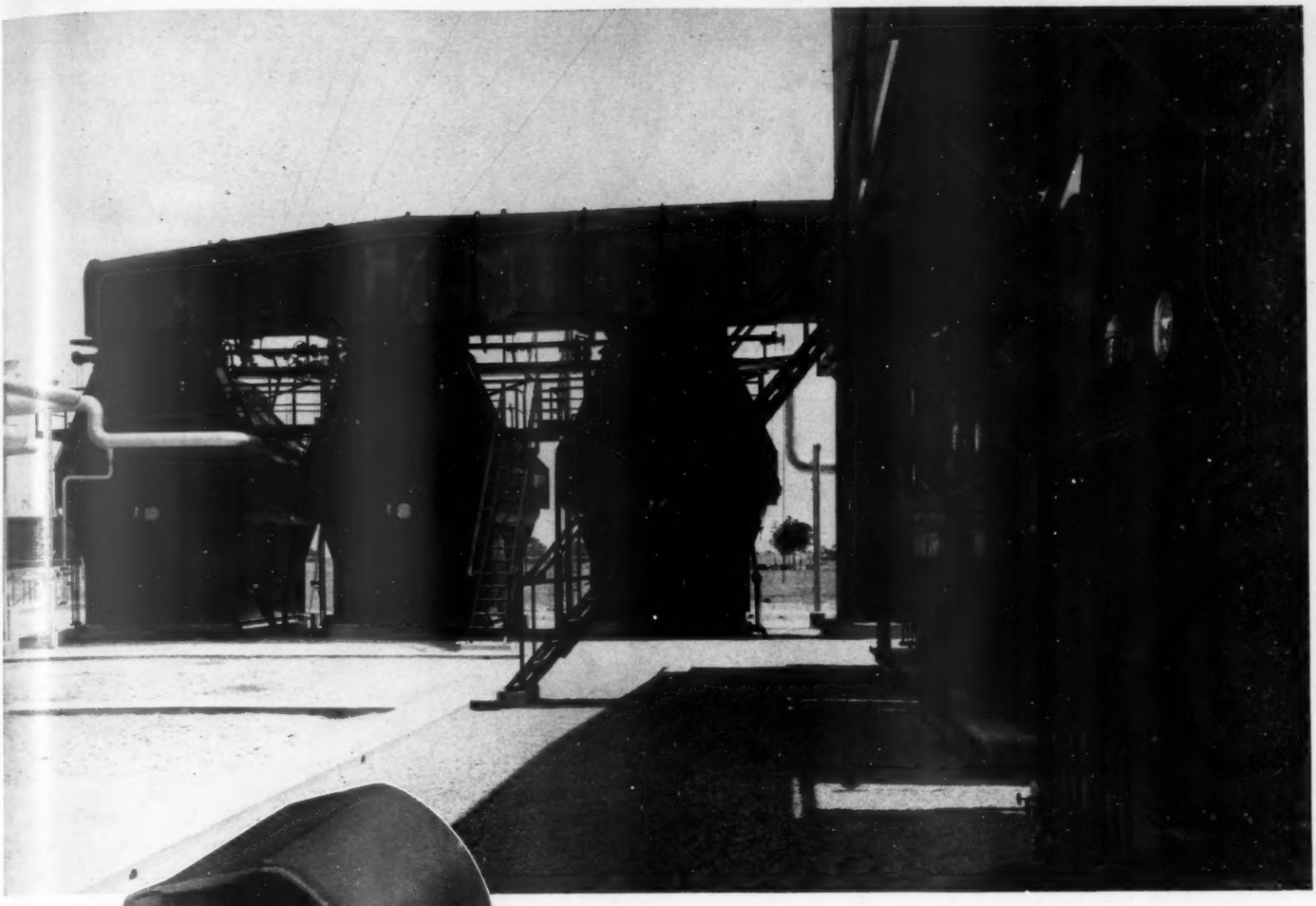
Frangible-disk safety heads are used on all high-pressure gas systems as they are considered more reliable than safety valves. Valves have been cut out by gas popping at 4,000 lb. per sq. in to atmosphere.

Safety-head discharges should not be manifolded in a common header as a single disk failure may cause all on the same header to burst due to a sudden pressure surge and reversal of stress. Discharge headers from safety heads on separators or other pressure vessels should be so placed that the bursting of a disk will not permit the out-rush of gas to knock over the vessel.

All compressor discharge lines from the machines to the headers should have safety heads installed and bypass lines around the heads should be provided for use when starting a compressor unit.

All compressor engines are equipped with automatic shutdown devices in the event of failure of circulation of either jacket water or lubricating oil. These devices consist of pressure-actuated mercoid contactors which short circuit the engine magnetos to stop the engines. Lubricating oil, water, low-pressure fuel gas, and air starting lines are located in a floor trench in the alleyway between the compressors.

Air cleaners of an oil-bath type are used for scrubbing all air going to power cylinders. The arrangement of the air cleaners is shown in Fig. 15. Proper air cleaning equipment greatly minimizes power-cylinder wear. Intake lines of ample size and with long radius bends are used to minimize friction loss to engine-intake ports. Walkways above piping between valves and air cleaners are also shown in Fig. 15. Header an-



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JOHN ZINK COMPANY

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chor loops are also shown in the same picture.

Each engine is equipped with a water-cooled heat exchanger to control its lubricating-oil temperature. A battery of such lubricating-oil coolers is shown in Fig. 16. Proper lubricating-oil temperatures are essential to good operations in any engine room. The engine-jacket water-cooling equipment is shown in Fig. 16, just behind the lubricating-oil coolers. Only a very narrow range of temperature rise between inlet and outlet-jacket ports is permitted for minimum wear in power cylinders. A high, but uniform, temperature permits operations with the least distortion of engine parts. Temperatures now carried are greatly in excess of those considered safe a few years ago, and excellent performance is obtained.

Fig. 16—Engine lubricating-oil coolers

Boiler Plant

The boiler plant at Ville Platte is of the outdoor type as shown in Fig. 17. There are six 254-hp. boilers (100 per cent rating) now in operation and two more are being installed. When completed the plant under normal operating conditions will deliver 7,064 b.hp. to the plant system.

The boilers are of the three-drum water-tube type. Stacks at the boiler installation are 7 ft. in diameter and 140 ft. high. The boilers are equipped with steel jackets over the insulation. Maintenance costs with profuse Louisiana rainfall has been small.

Cooling Water

Continental's Ville Platte pressure-maintenance, gasoline, and desalting operations impose a 52,000,000 B.t.u. per hour load on the water-cooling equipment. With this large load no cooling tower is used. Exhaust steam from gasoline-processing prime movers is used for heating crude as it goes to the desalting tanks. Condensed steam is returned for boiler-feed water.

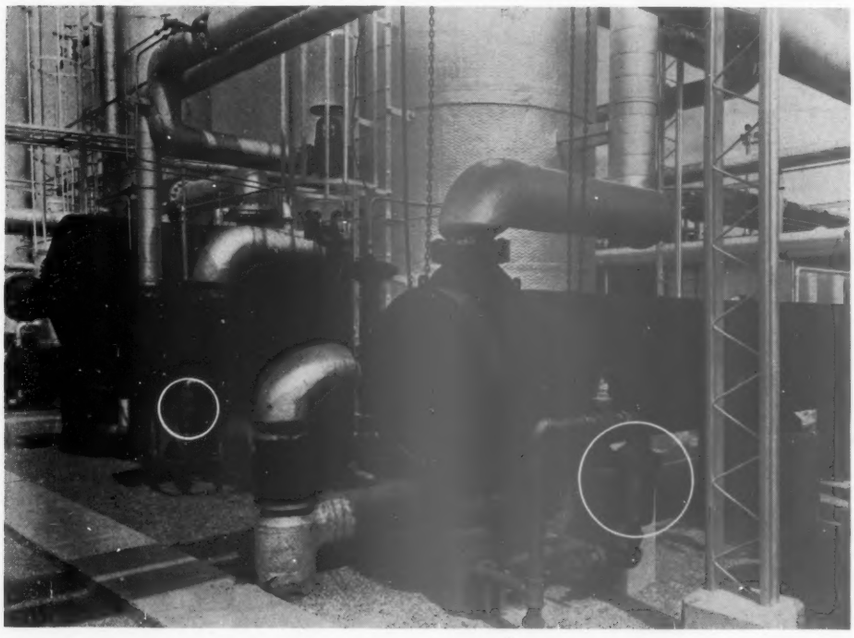
Good soft water is available in unlimited quantities in southern Louisiana which permits operations without the objections of average types of cooling towers. High temperatures, high humidity and at times without wind, make cooling towers operate at low efficiencies. Cool, deep-well water permits of uniform operations at all times.

Water for cooling is obtained from five deep wells and is lifted with steam-turbine-driven pumps. The well water is obtained at 75° F. Some portions of this water are used as many as five times, after which it is discharged into a local bayou at a temperature of approximately 120° F.

Oil and Gas Lines

Many lines from leases to the central plant are over a mile in length. Some of the lines to input wells are also very long. To prevent damage from the back flow of an input well in the event of line breakage between the plant and the well, all such lines are equipped with nonreturn check valves. The valves are generally installed at or near the christmas tree on the input well.

Trapping Heat Exchangers in new Continental Plant at *Ville Platte, La.*



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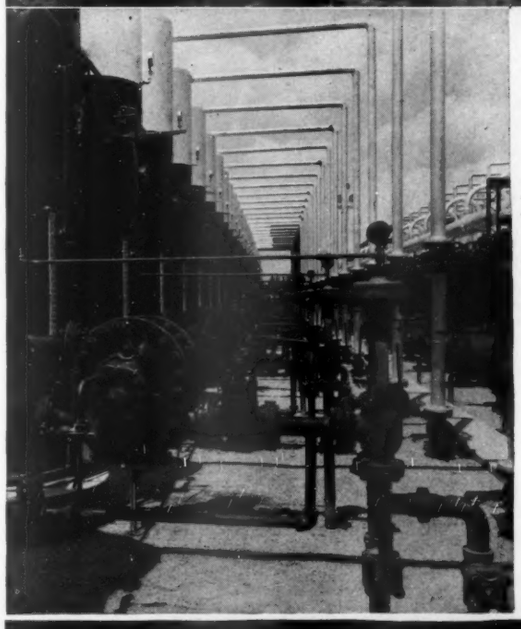
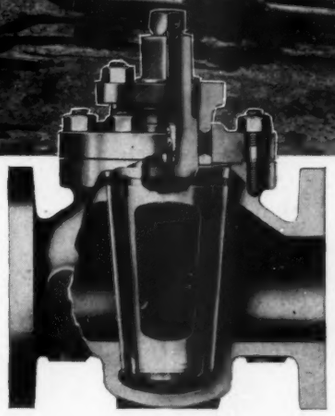
Walworth Lubricated Plug Valves chosen by Continental Oil Company for new Ville[illegible] Platte Plant





In this, the world's largest field stabilization, natural gasoline recovery, and pressure maintenance plant there can be no compromise with quality. Significant is the fact, that here as in refineries the world over, Walworth Lubricated Plug Valves play an essential part. Experience has proven their trustworthy performance in difficult services. They are made in sizes from ½ to 24 inches and for pressures up to 5,000 lbs.

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All field lines are of high-strength seamless steel tubing and are fabricated by welding.

Expansion loops are provided for all input lines as the temperature range from operating to nonoperating conditions may be as much as 200° F. Under this range of temperature rigid connections would fail. Loops in vertical planes have been found satisfactory for permitting a suitable amount of expansion and contraction for input lines. The loops are approximately 12 ft. in diameter and are anchored with stay lines at the top point.

Input Wells

The Tate sand in the Ville Platte field was undersaturated when initially discovered and contained scarcely enough gas to flow the wells. An undersaturated formation loses pressure very rapidly when oil is removed, and is the type where the return of gas is very essential. With such a condition existing, it was decided to return all available gas to the producing zone through a suitable number of input wells.

Regular producing oil wells are used for input purposes. The highly faulted condition of the pool makes it necessary to change input well locations from time to time, and the use of specially drilled wells for this purpose is not advisable. It is very essential that any well used for gas input be thoroughly cleaned of all drilling mud as a very small quantity of it will plaster the well bore tight and prevent gas from going into the producing zone.

Where wells are used for input purposes they may again be used as producers. Before doing so, however, they should be kept shut in for 30 to 60 days to give the gas cap formed locally time to disperse. Such reverse operations have been successfully carried out at Ville Platte.

Additional wells are used for input wells as field expansion continues. Plant equipment has been added currently as new production increased. The result of this is that at no time has the plant been completely finished.

Working pressures up to 4,500 lb. per sq. in. have been used for returning gas to the producing zones. It is always desirable to work with the lowest possible pressures on

(Continued on Page 74)

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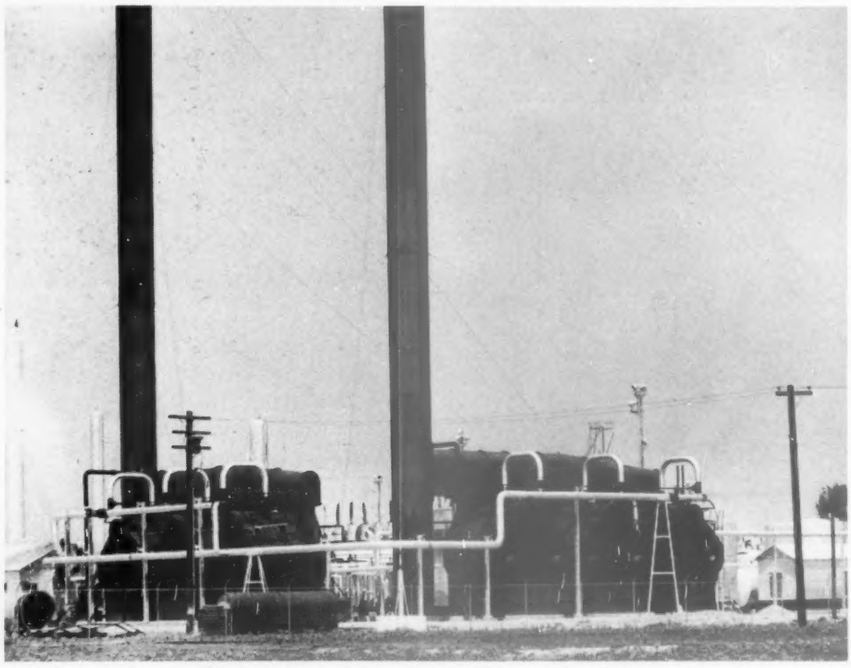

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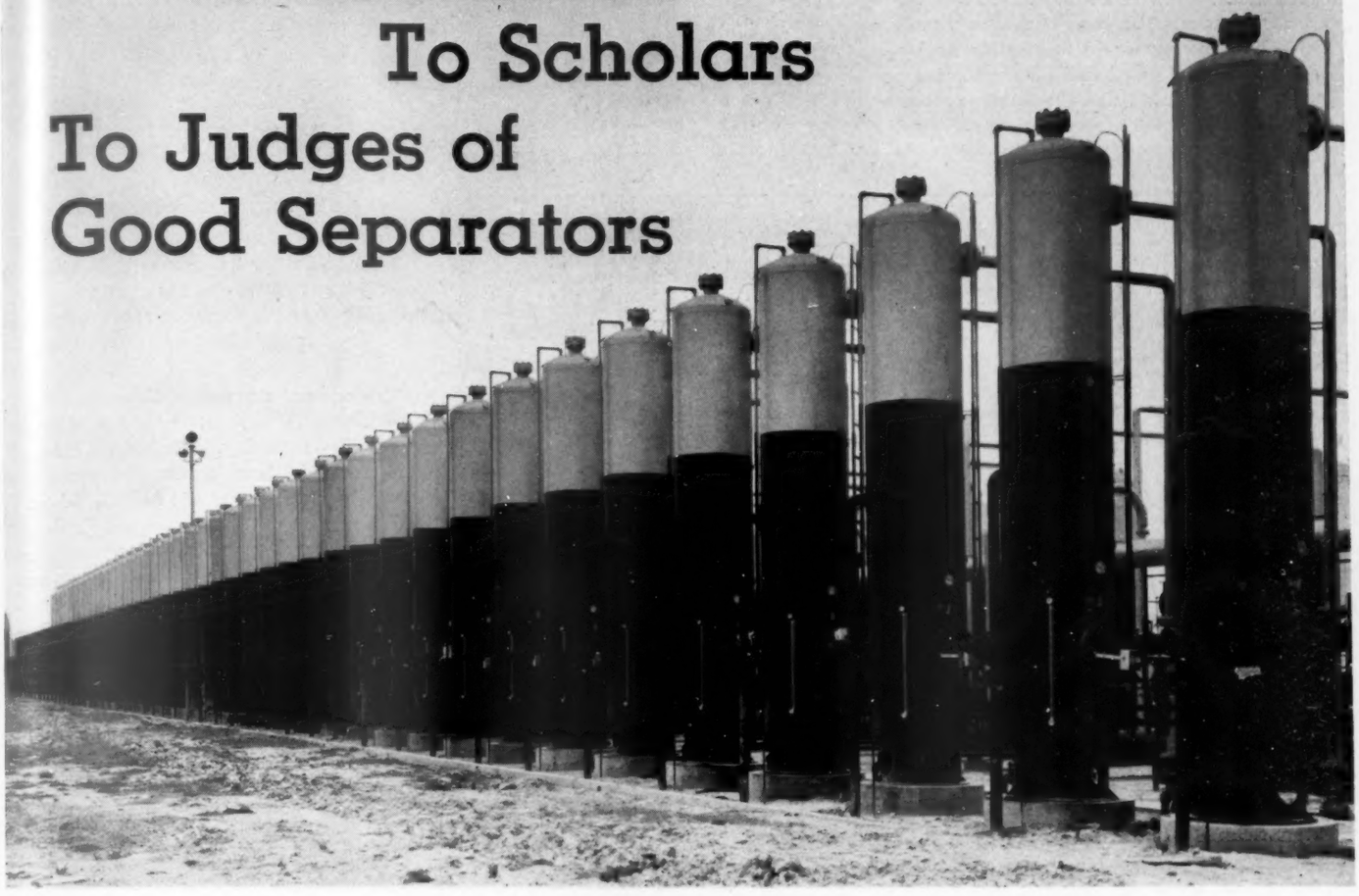

An Imposing Separator Display at the World's Largest Stabilization Plant, Continental Oil Company, Ville Platte, La.

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account of volume, which may be handled with a given pressure. It becomes somewhat difficult to maintain packing at pressures much over 3,500 lb. per sq. in. and the danger of plugging lines by the formation of hydrates enters rapidly at extreme pressures.

Hydrates will not form under the same pressures for all natural gases. Their appearance cannot be predicted in advance. It is believed advisable to assume no hydrates will be formed and then work out a solution for their elimination if they appear.

Practically no trouble was experienced with hydrate formation at Ville Platte. In other projects much difficulty was encountered.

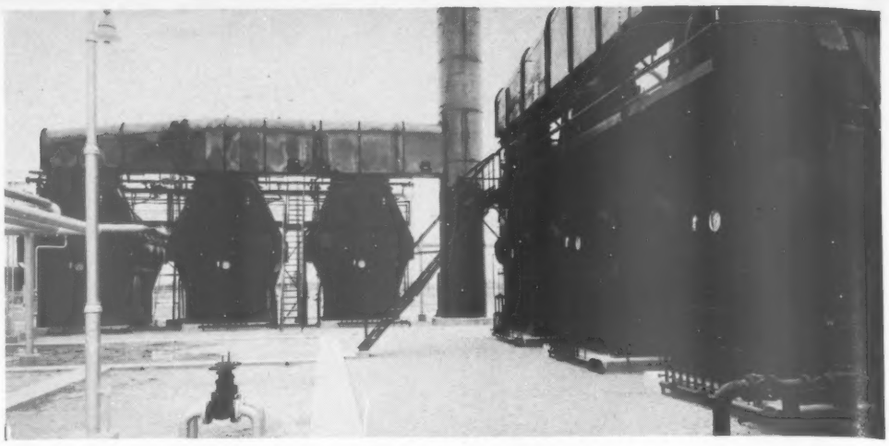


Fig. 17—Boiler installation at corner of yard

Dehydration of the gas is the surest but most expensive way of eliminating hydrate troubles. Insulating lines is effective in some cases and is the cheapest where it can be used.

The original gasoline and pressure-maintenance plants were designed for 30,000,000 cu. ft. of gas per day. With greater areal extent, and additional sands discovered, this capacity was increased to 100,000,000 cu. ft. and may be further enlarged. Producing rates of all wells are carefully watched and studied for best operating conditions as complete control at all times is conducive to the greatest ultimate economic recovery.

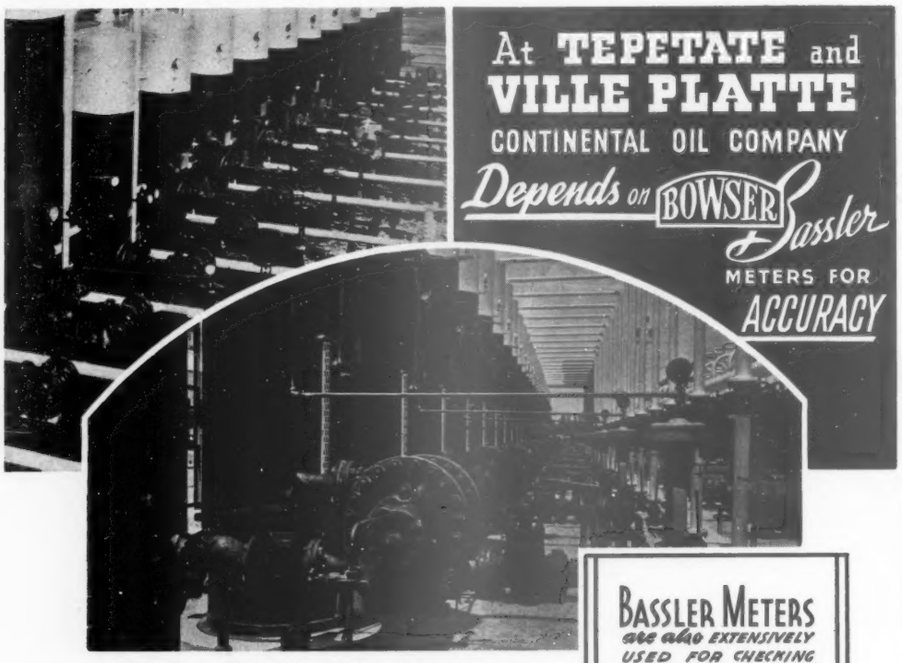
With a continued expansion since inception definite results due to pressure-maintenance operations are not as apparent as in a completed field. The rate of pressure decline per barrel produced has, however, shown a marked reduction which will reflect in a longer flowing life and minimum lifting costs. When drilling is complete and production is on a uniform basis, the results obtained under pressure maintenance will be of the same order as those realized in other successful pressure-maintenance projects. In addition to the value of conserved energy, for the recovery of additional oil, the saving of gas will provide a large reserve for future use and for the possible manufacture of some of the many compositions which can be made by reforming gaseous hydrocarbons.

In the design and construction of the Ville Platte operations, much consideration was given to centralization and flexibility. Liquid processing, crude-oil and gas measuring, desalting, pressure maintenance, and pipe-line oil pumping are all compactly grouped so that all operations may be conducted with minimum personnel and costs.

Equipment is arranged so that additions may be made for enlargement with a minimum of shutdown time. Centralization of facilities and efficient operation will give the greatest ultimate recovery of all products at the lowest possible cost.

Oil produced at Ville Platte is pumped through 30 miles of 8-in. pipe line to Tepe-

(Continued on Page 78)



It pays to check oil well production with Bassler meters! At Tepetate and again at Ville Platte this statement has been proved time and again, because Bassler meters showed that: Crude and gas can be conserved . . . that accurate, undisputable production records can be maintained without gauge tanks, evaporation losses, or fire hazards . . . that labor and transportation costs can be reduced. Bassler meters, pioneers in accurately checking well production, can help YOU. Write for details, Today!

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are also EXTENSIVELY USED FOR CHECKING
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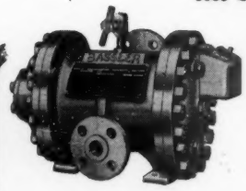

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1000 pounds per square inch! That's the pressure rating of the NEW 1" Bassler meter. Especially designed for measuring production direct from the well.

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PREFERRED BY PETROLEUM ENGINEERS EVERY TIME!

HERE'S WHY:

- They know that Wizard Pilots incorporate such outstanding features as... Built-In Throttling Range Adjustment — Vernier Screw Adjustment for Controlled Pressure Setting — Integral Weather-Proof Housing for Pressure Gauges — Gas-Tight, Weather-Proof Cases.
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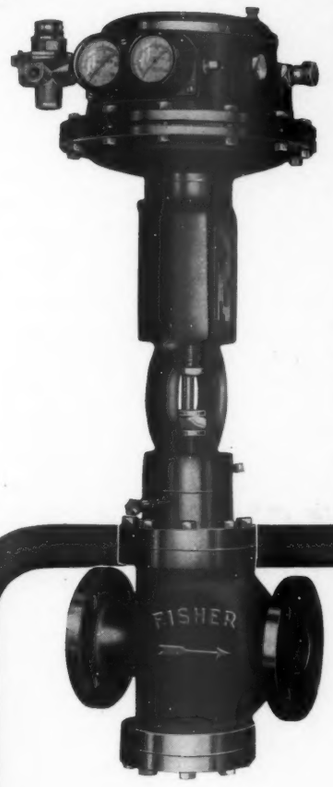
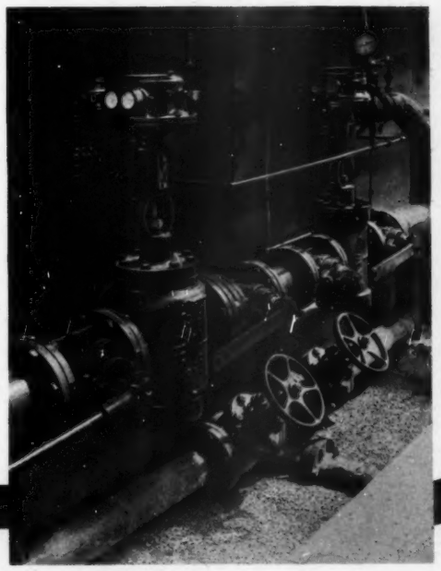
- They know that the main diaphragm valves are specially designed for pilot operation.
- They know that Wizard Controllers assure them of extremely sensitive boiler pressure control and dependable trouble-free service.
- And, finally they know that every Wizard Controller carries the Fisher Guarantee of complete satisfaction.



CONTINENTAL OIL COMPANY ENGINEERS SELECT WIZARDS FOR NEW LOUISIANA PLANT!

Pictured at the right are two FISHER Wizard Pilot-operated Controllers installed in the new Continental Oil Company Plant at Ville Platte, Louisiana. The right hand valve is acting as a reducing valve while the left hand valve is controlling the gas to the burners. Many other FISHER Controllers, including a large number of Type 246 Level-Trols and Diaphragm Valves are in use in this plant.



FISHER GOVERNOR COMPANY
• 219 FISHER BUILDING •
MARSHALLTOWN, IOWA

tate, La., and from there to the Lake Charles terminal or refinery.

The line has a capacity of 29,000 bbl. per day at 900 lb. per sq. in. working pressure. The pumping unit consists of a 6-in., 8-stage pump, direct connected to a steam turbine. The turbine operates at 3,600 r.p.m. By regulating hand-operated steam valves in the turbine, the horsepower output may be varied from 290 to 600. The nozzles are varied according to the load.

Two 4-in., 850-lb. per sq. in. working-pressure meters are used to measure the oil pumped. The meters are on the discharge side of the centrifugal pump. Intake to the pump is direct from 80,000-bbl. field storage tanks. The pumping unit is housed in a steel frame building 12 ft. by 16 ft. by 8 ft. and the pumping operations are conducted by the gasoline-plant personnel, since the unit is located in the central-plant yard along with the separator battery, gasoline plant, and pressure-maintenance equipment. Fig. 18 shows the pipe-line pump.

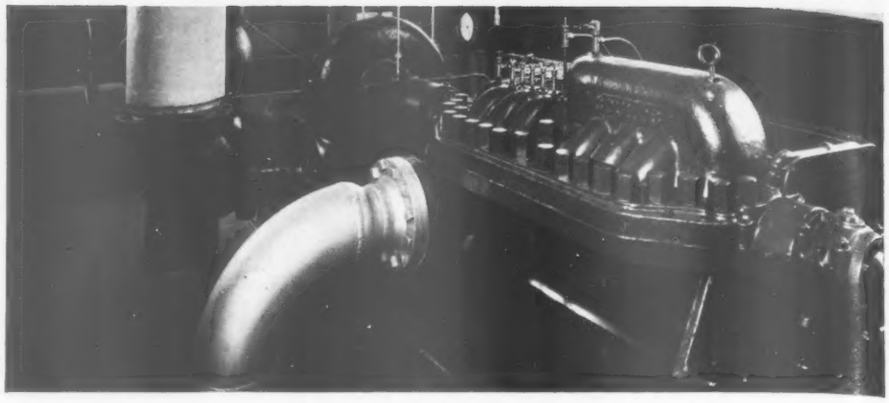


Fig. 18—Turbine-driven centrifugal pipe-line pumps

With the type of equipment used and operations employed, the Ville Platte field is believed to be the most efficiently operated oil field; and for this reason will recover the greatest possible quantities of oil and other usable hydrocarbon compounds, with the saving of methane and other dry gases for future use.

The principal employes working in the Ville Platte field are provided with strictly modern housing facilities. The camp for the Ville Platte field is located in a natural grove of native moss-covered oak trees. The only trees removed were to provide building sites and a camp street. From the picture of one of the camp houses shown it can be seen that employes go in for gardening in their spare time. There is much friendly rivalry in the camp along gardening and beautification lines. The pride taken by the employes in their homes and gardens is evidence of their appreciation of such living conditions. The Ville Platte camp is one of the finest to be found.

Continental's production department, under J. G. Dyer, vice president and manager; M. H. Shanahan, assistant manager, and E. O. Bennett, chief petroleum engineer, has been a leader in such operations as are being carried out at Ville Platte.

The active field production and drilling work at Ville Platte has been under the supervision of F. W. Waltermire, division superintendent, and O. L. Fisher, district superintendent. Oil pipe-line and terminal operations are directed by A. C. Wilkinson, general superintendent.

Gasoline and pressure-maintenance plant operations are under the supervision of R. A. Carter, superintendent, natural-gasoline and gas division, with C. R. Williams and F. B. Haverfield, assistant superintendents. A. F. Crouse is district superintendent of the Louisiana area, and P. F. Elmore is plant foreman.

•

Wage-Hour Division Issues Regulations on Complaints

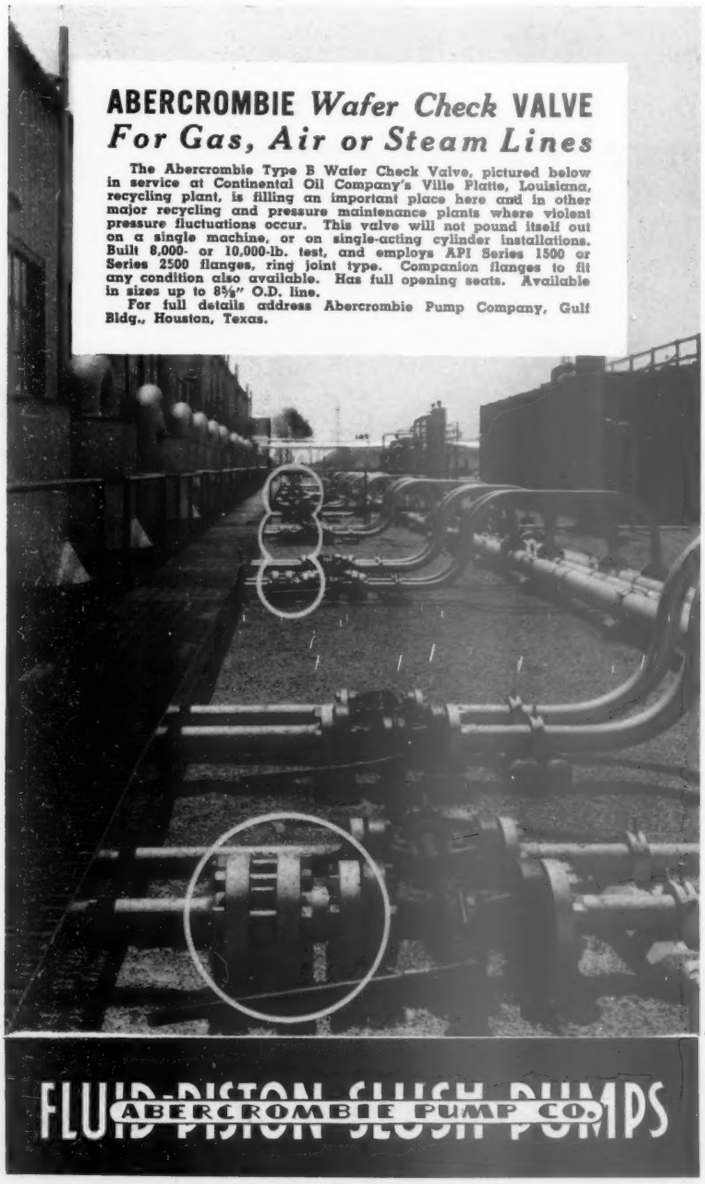
WASHINGTON, D. C., Oct. 7.—The Wage and Hour Division of the Labor Department has released regulations to speed up issuance of apprentice certificates, and has devised a new procedure to quicken action under wage-hour complaints.

Revised regulations provide that apprentice agreements may be immediately approved by local joint committees as well as by state apprenticeship councils. The agreement shall be considered a temporary apprenticeship certificate, and the employer may hire apprentices at once. Later, the Wage and Hour Division in Washington will issue the regular certificate to the employer.

To hasten action on complaints under the Wage and Hour act, each employer against whom a complaint has been filed will be asked to fill out a questionnaire. The form summarizes the requirements of the law, and tries to inform the employer whether he has complied with it. He may immediately decide that he has been violating the law and will make restitution of back wages, instead of waiting for an investigation by an inspector, which may take months.

River Movements Decline

PITTSBURGH, Pa.—Movement of petroleum products on the Allegheny, Monongahela, and Ohio rivers declined in August over July, reports of the U. S. Army engineers reveal. On the Allegheny 4,440,000 gal. were moved, a decline of 1,290,000 gal. Shipments on the Monongahela totaled 8,970,000 gal., a drop of 1,590,000 gal. The Ohio movement was 21,300,000 gal. or 3,900,000 gal. less than in July. During August the Allegheny River broke all records for shipments of all kinds of freight, but traffic on the other two rivers declined.


ABERCROMBIE Wafer Check VALVE
For Gas, Air or Steam Lines
The Abercrombie Type B Wafer Check Valve, pictured below in service at Continental Oil Company's Ville Platte, Louisiana, recycling plant, is filling an important place here and in other major recycling and pressure maintenance plants where violent pressure fluctuations occur. This valve will not pound itself out on a single machine, or on single-acting cylinder installations. Built 5,000- or 10,000-lb. test, and employs API Series 1500 or Series 2500 flanges, ring joint type. Companion flanges to fit any condition also available. Has full opening seats. Available in sizes up to 8⅝" O.D. line.
For full details address Abercrombie Pump Company, Gulf Bldg., Houston, Texas.
ABERCROMBIE PUMP CO.

New Recycling Plant in La Rosa Field Has Unusual Operating Features

By NEIL WILLIAMS

INCORPORATED in Coronado Corp.'s natural-gasoline and recycling plant in La Rosa field, Refugio County, Texas, are various features of design and operation, which, in their application to such installations, represent distinct innovations. Through them a higher recovery of marketable products, greater flexibility in distillation and control of types and specifications of products, and generally increased efficiency in processing and conservation of gas are expected to be made possible. The plant has been in operation only a few weeks.

In actual installation it is very similar to a plant which also has just been completed at Grapeland, Tex., but, processing an entirely different type of gas with more varied product recovery, operating conditions and control are far from being the same. It also includes a low-pressure system for field gas, the operation of which is so tied into the process as a whole that it is an important factor in the conservation of gas and high efficiency being obtained.

In effect, the plant is a complete refinery, including a natural-gasoline plant, gas recovery system, and a recycling plant for the return of the stripped high-pressure gas to the producing sand in maintenance of reservoir pressures. It is equipped to produce butanes, motor-fuel gasoline, naphtha, kerosene, or mineral-seal oil or gas oil. Production of these products can be varied greatly, both as to volume and specifications.

Gas produced at La Rosa is rich with a proportionate content of butanes. Operation of the plant is designed to recover not only all pentanes and lower, but also up to 65 per cent of all butanes. For this efficiency, provision is made for the recovery and retention of all gases in the system except propanes and higher, which as residue from the depropanizing column are used as fuel under the boilers.

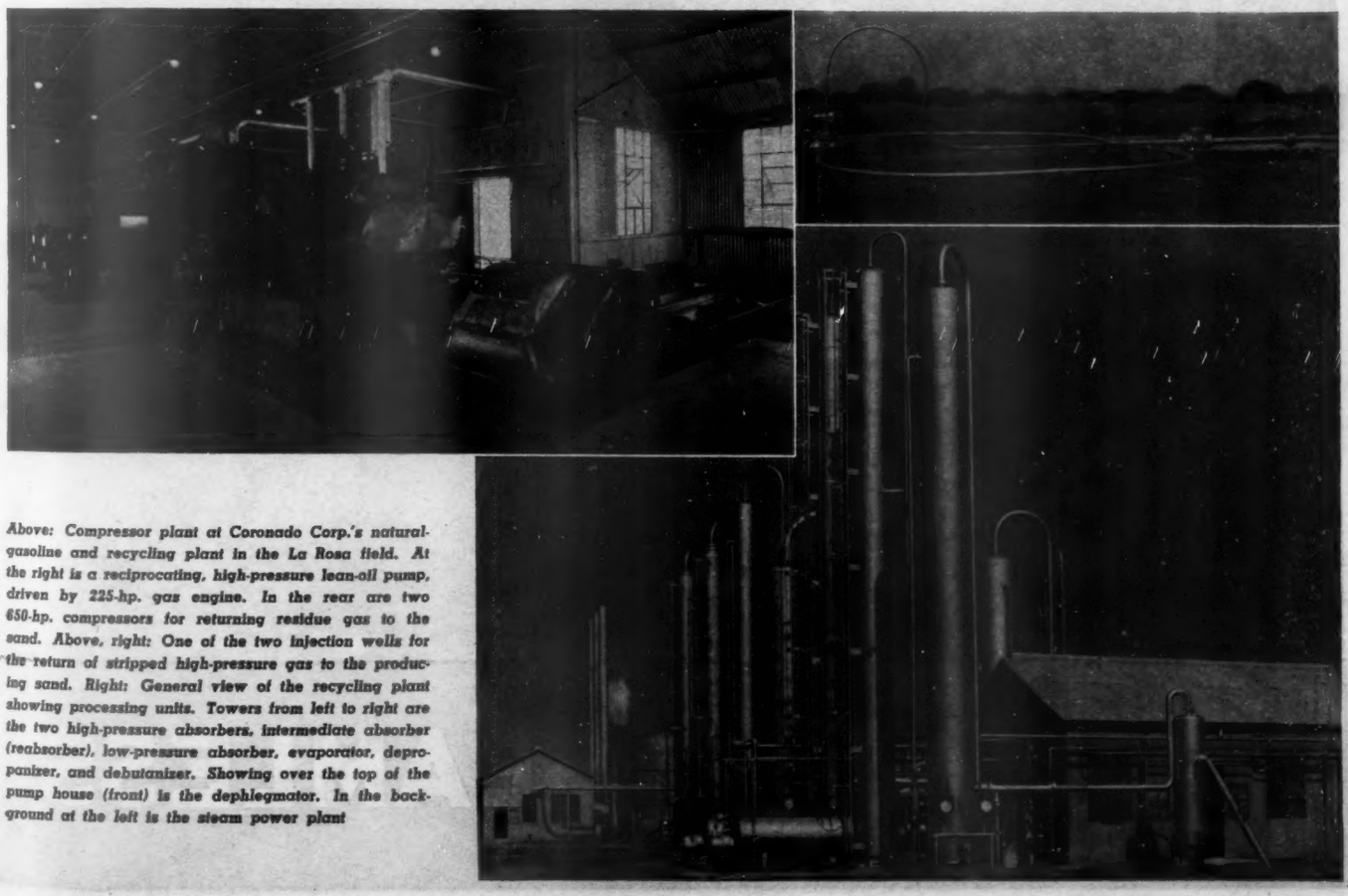
High-pressure absorption is embraced as the primary recovery phase of the plant operation. Although absorption at high pressures has ceased to be a major problem or a novelty and it is now known that absorption at pressures as high as 2,000 lb. or more is within the realm of feasibility, the pressure of 1,650 to 1,700 lb. at which the Coronado plant is operating is higher than that of any other plant so far built.

Two high-pressure absorbers have been provided. These now are handling from 45,000,000 to 50,000,000 cu. ft. of distillate-bearing gas, representing their approximate capacity as correlated with that of the two compressors for the return of the stripped gas to the reservoir.

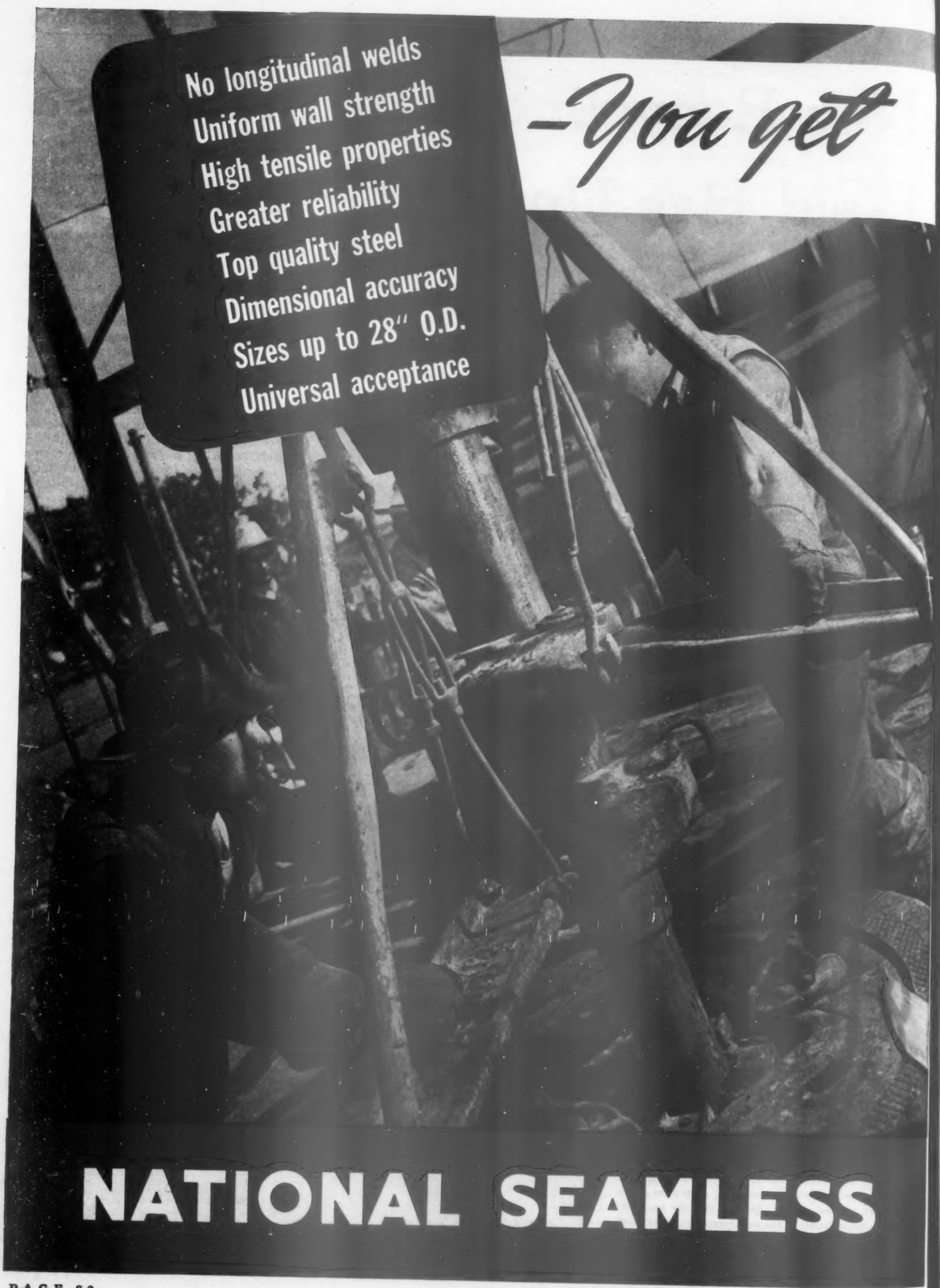
Gas processed through the high-pressure system represents the production from a 5,800-ft. distillate sand structure, in which there are five producing and two injection wells, all drilled as a part of Coronado's recycling project. Flowing pressures of the wells average from 2,000 to 2,100 lb., at which pressure the production is delivered to the plant through the high-pressure gathering system.

At the plant the flow of the distillate-bearing gas is split to the two high-pressure absorbers, operated in parallel. Inlet gas having a temperature around 100° F. is charged to the absorbers through scrubbers where a small initial separation of fluids takes place. Otherwise there is no separation of fluids ahead of the high-pressure absorbers. The condensate recovery from the inlet gas scrubbers is discharged through a common line to a distillate vent tank, pressure of which

(Continued on Page 84)



Above: Compressor plant at Coronado Corp.'s natural-gasoline and recycling plant in the La Rosa field. At the right is a reciprocating, high-pressure lean-oil pump, driven by 225-hp. gas engine. In the rear are two 650-hp. compressors for returning residue gas to the sand. Above, right: One of the two injection wells for the return of stripped high-pressure gas to the producing sand. Right: General view of the recycling plant showing processing units. Towers from left to right are the two high-pressure absorbers, intermediate absorber (reabsorber), low-pressure absorber, evaporator, depropanizer, and debutanizer. Showing over the top of the pump house (front) is the dephlegmator. In the background at the left is the steam power plant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***NATIONAL SEAMLESS** means pierced from solid billets of finest quality steel. Only sound and flawless steel can be successfully pierced, since any defects in the steel are certain to be exposed by this process. At every stage in production, thorough tests and inspections redouble your assurance that every length of NATIONAL Seamless will display the same uniform wall strength, dimensional accuracy, and uniformity in all physical properties.*

Walls without Welds

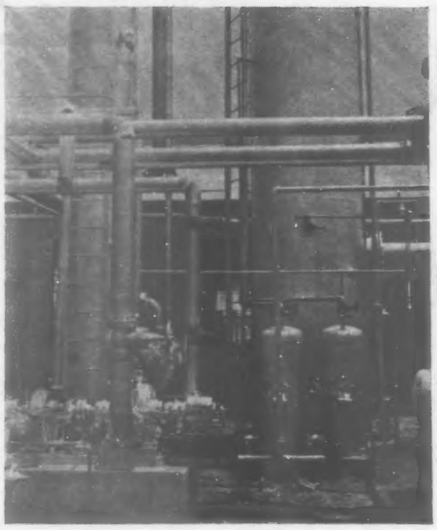
is equalized with that of the rich-oil vent tank and intermediate reabsorber.

Lean absorption oil is circulated to the high-pressure absorbers at the rate of 150 g.p.m. by a 3¾-in. by 18-in. National Transit reciprocating pump, taking suction at 140 lb. pressure. As a means of reducing steam-power requirements to a minimum, a factor in the efficient operation of the plant, this pump is direct driven through an extension from the flywheel shaft of a vertical 225-hp. compressor engine used in recompressor duty. Also, through the plant, turbines and gas engines generally are utilized wherever possible, so that high-pressure gas, rather than steam, can be used for power, thus minimizing steam requirements.

The above pump has a speed variation of 50 per cent. It is equipped with safety heads, ball check valves to hold the pressure back in starting, and Abercrombie packed and lubricated shear-relief valves as a precaution against excessive pressures.

All the stripped residue gas from the high-pressure absorbers is returned to the producing sand. Gas for operation of engines and turbines is taken from the residue of the intermediate absorber (reabsorber), pressure of which is held around 125 lb., which is adequate for all needs. Fuel gas is supplied from the stripped low-pressure gas and from depropanizing column residue. At no other point is any gas withdrawn with the result that maximum conservation of all gas is effected and fluid recovery enhanced.

For return of the stripped high-pressure gas to the sand, there are two Ingersoll-Rand 650-hp. compressors, one for each high-pressure absorber. Taking suction from the overhead stripped gas from the absorbers at pressures of 1,650 to 1,700 lb., these compressors are discharging at pressures up to 2,600 lb. through a common line to the two injection wells. Suction to each of the compressors is taken through a scrubber, provided as a precaution against any entrained oil going overhead with the residue gas. However, normally the fluid accumulation in the scrubbers is scarcely perceptible.



Dehydrator installation for kerosene and naphtha sidestreams from the dephlegmator. These two separate dehydrators, at the base of the dephlegmator, make possible a high degree of flexibility in control of products and specifications

Compressors are of the latest four-cycle eight-cylinder vertical V-angle type with two double-acting compressor cylinders. The cylinders are made of solid forgings without water jackets, as water circulation on the compressor cylinders is not needed. Suction temperature of the gas is 100° F., and at discharge the temperature of the gas is only 170° F., an increase of only 70°. This installation not only has eliminated the need of a cooling-water system but also has made for a much cleaner and neater appearance. In some previous installations of engines of the same type using compressor-cylinder water jackets it was learned that instead of the water cooling the cylinders, the gas actually was cooling the water.

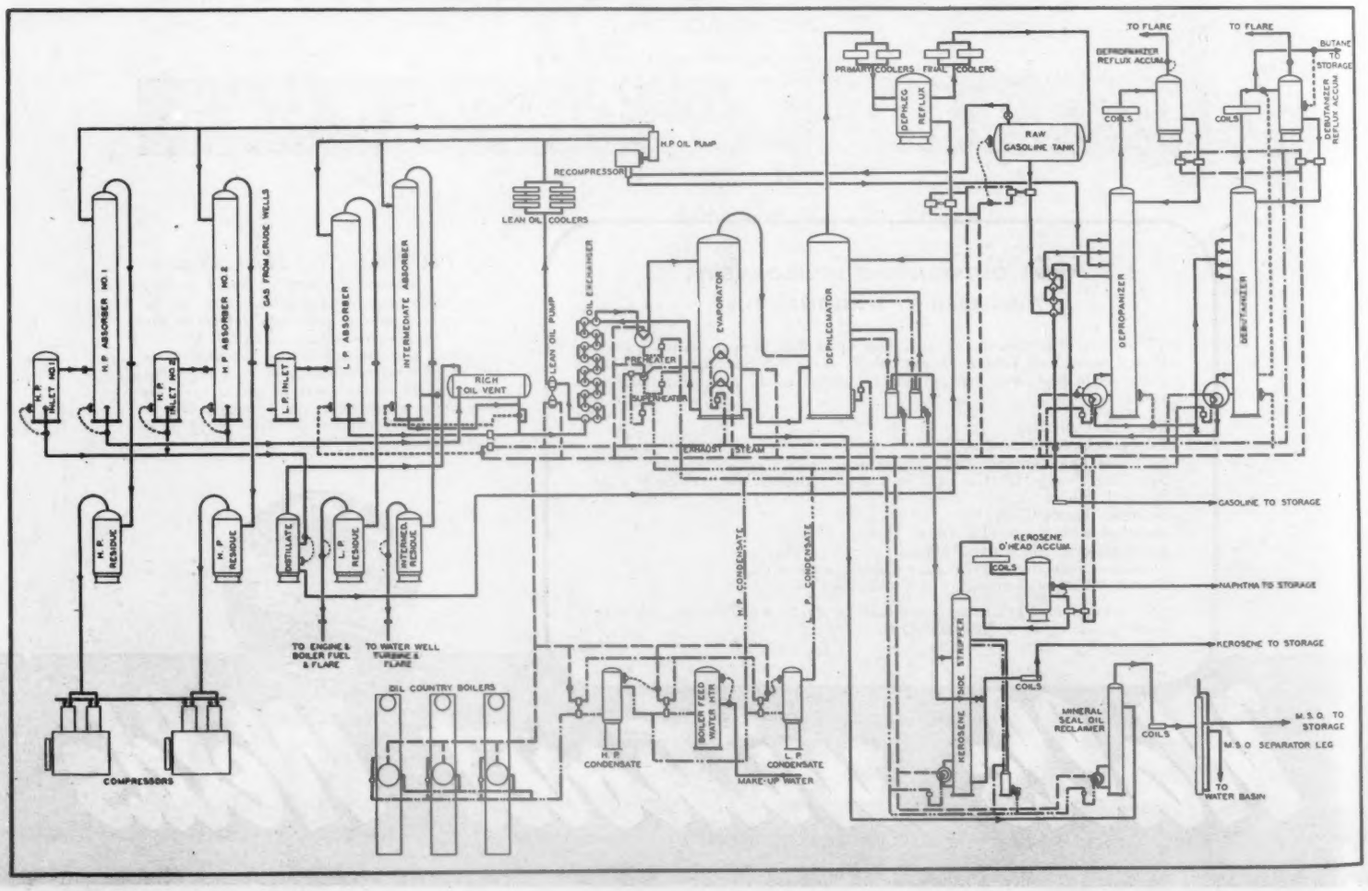
Rich oil from the high-pressure absorbers is flashed to a rich-oil vent tank, where the pressure is dropped to 125 lb. Flashed gases are passed overhead from this accumulator to the intermediate absorber for further stripping of any entrained liquids or condensate. The rich-oil vent tank and the reabsorber have the same fluid level and pressure control. By this there is a continuous recycling of the flashed gases to the reabsorber, a feature that makes for more thorough stripping of the gases as the initial step of the secondary recovery phase of the plant operation.

Also having a common pressure control with the rich-oil vent tank and reabsorber is the distillate vent tank, into which is charged the condensate accumulation taken from the high-pressure gas in passing through the inlet scrubber to the high-pressure absorbers. The gases flashed from this vent tank are passed with the flashed gases from the rich-oil vent tank to the reabsorber, where they return to the system. The condensate bottoms from the distillate vent tank provide reflux to the top of the dephlegmator.

Lean oil is circulated to the intermediate absorber, and also, by a split stream, to the low-pressure absorber, by a Moore turbine steam-driven centrifugal pump. The latter pump also

(Continued on Page 94)

Simplified flow diagram of Coronado Corp.'s recently completed natural-gasoline and recycling plant in the La Rosa field of Southwest Texas



Operating Ideas

Maintaining Accurate Mud-Weight Mixing

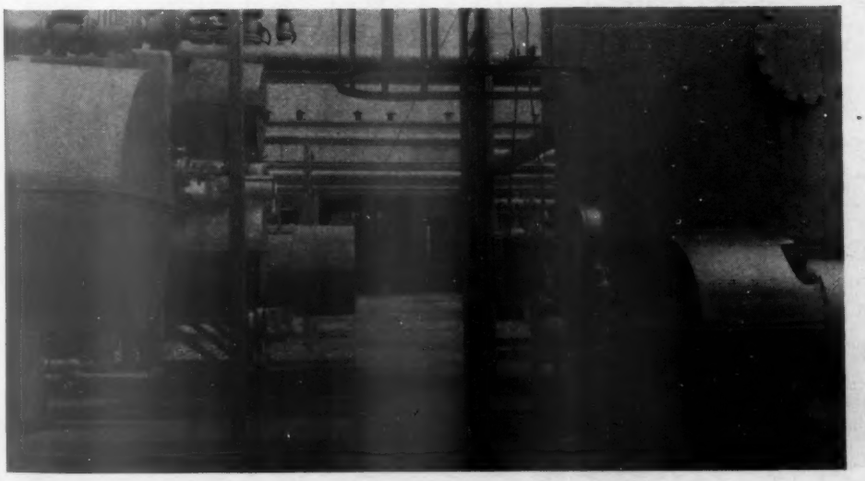
Use of an open wooden box, into which materials for weighting or treating mud may be dumped, and equipped with a suction hose to pick up the material and deliver it to the mixer, permits close control of the operation. By inserting a short pipe nipple in the end of the hose used in the box, and by flattening the nipple until only a narrow slit is left, only fine material can be picked up and the device will automatically reject lumps which, if allowed to enter the mixer, might cause clogging or result in lack of uniformity of the mud. A tightly fitted cover affords protection for the box against moisture from exhaust steam or rains, and prevents possible contamination.

Stand Aids in Welding Of Ells and Nozzles

The device shown in the accompanying photograph was designed by one construction contractor to speed up the welding of ells and nozzles to bolted flanges. The head is slotted so that it will fit any flange up to 12 in., has an adjustment to tilt at any angle and revolves as the welder completes his weld. This has been found to speed up greatly this type of welding operation and its portability allows it to be moved to any point of construction on the pipe-line or plant yard. The stand was welded entirely from scrap sheet steel and used pipe.

Swedge Serves as Oil-Supply Source

At one rotary rig a 2-in. collar which has been welded on the rotary table-chain-drive housing serves as an oil reservoir and by means of a petcock fitted into the bottom the quantity of makeup oil to be added, or the quantity to be allowed to drip, is regulated. A cast-iron cap serves as a cover to protect the oil against pollution or loss through splashing when the container is nearly full. Where the chain is drip-lubricated, as when the bottom of the chain housing is open or not oil-tight, the drip can be set faster so as to provide sufficient lubrication for the chain while in operation.



Removable Caps on Heat Exchangers, Gas Coolers

In refineries and natural-gasoline or recycling plants where elevated temperatures are used, much processing equipment must be insulated in order to reduce heat losses; if subnormal temperatures are used, to reduce the absorption of heat. At one recycling plant recently completed at Nueces County, Southwest Texas, the insulation over the ends of heat exchangers, gas coolers and tube sections was made in the form of removable caps. This enables the workmen to repair or clean the tubes without having to tear out and replace the insulation. Some caps are in four sections and some in two, held together by bolts.

Surface and Mechanical Factors Affecting Drilling Fluids

By HARRY F. SIMONS

In this second of a series on rotary drilling muds, mechanical equipment used in preparing and maintaining adequate mud supplies is discussed; also given is a discussion of the quantity of mud needed, the work of the mud pumps and factors affecting the quality of the fluid. The first article of this series, dealing with the purpose of drilling fluid, appeared on Page 46 of the September 26 issue of The Oil and Gas Journal.

IN a large number of cases the treatment necessary to obtain satisfactory results from mud used for rotary drilling could be reduced if proper care and consideration were given to a number of factors, including the volume of mud moving in and out of the hole, the size of the drill pipe and the size of the hole, the speed of rotation, weight carried on the bit, rate of penetration and surface handling. Proper adjustment of these factors will enable the mud to perform its tasks; drilling time will be reduced, cost of mud treatment will go forward, and satisfaction with the treatment will go upward.

The general layout of the mud system was given in the preceding article; the effect of too shallow pits and channeling of the mud stream was also discussed. Control of these two factors and the maintenance of a good supply of mud is possible if reasonable care is taken. Practically all pits are equipped with jets for cleaning the mud, the number depending on the depth of the well and the attention required by the mud. Systematic use of the jets will make it possible to control the mud and substantially reduce the cost of admixtures and treatment.

The accompanying diagram (Fig. 1) shows the jet and mud-gun system used by one contractor for his steam rigs. Substantially the same plan is followed on power rigs except mud is used for jetting as well as gunning. The jets rest on the bottom of the pit and hence they remove the cuttings and fluid near the bottom; this proves two purposes: the cuttings which have settled in the pit, and the dead mud near the bottom are removed.

The mud from the settling pit and the shale pit is jetted into the reserve pit where it is allowed to settle. A pipe connection at the far end of the reserve pit allows it to flow through the dike into the second reserve pit from which it can flow by gravity or be jetted back into the settling pit. Mud from the suction pit can be jetted across the dike into the settling pit and then into the reserve pit, or it can be jetted directly into the reserve pit.

On many wells, only the shale pit is jetted with any frequency and the quality of the mud suffers as a consequence. If any jetting is to be done, it should be divided among the various sections of the pits so that all of the pits are kept as clean as possible. Jetting of the pits at the time each joint is added will keep the mud from getting too heavy and a thorough jetting and cleaning during each trip will keep the mud in good condition. Mud removed from the circulating system can be replaced by clean mud from the reserve pit and some water added to reduce the viscosity. When the well reaches a depth where drilling is slowed, jetting need not be so frequent or intensive but supervision of the mud should not be relaxed.

Addition of Water

Any severe change in the character of the mud invariably results in some effect on the condition of the walls of the hole. The addition of water should be gradual and care taken to avoid "slugging" with a large quantity of fresh water. The practice of jetting the shale pit dry and then filling it completely with fresh water will invariably result in caving of the hole and sticking of the drill stem. Considerable quantities of admixtures may have to be used to correct the trouble. Intimate mixing of the water with the mud before it reaches the pump suction is also helpful and a number of fine streams of water having considerable force are better than a single large stream. The best place to add the water is just in front of the vibrating screen as it helps thin the mud and aids passage of the fluid through the screen openings. An accompanying illustration shows the method used by one company on a deep test.

The introduction of vibrating screens and shale shakers several years ago greatly aided mud control and added to the efficiency of the mud systems on the deeper wells. The machines would be an important addition to the mud system on shallow wells as they take little time to install, are economical in operation and efficiently remove the larger cuttings from the fluid. They are installed between the flow line and the pits with the cleaned fluid being directed into the first settling pit and the cuttings into a special shale pit; a jet can be used to remove the cuttings from the shale pit and thus prevent their piling up to where they will interfere with the efficient operation of the screen.

While the screens act as a degassing agent by passing the mud through the 30-mesh cloth, some other agent is often necessary to aid in the elimination of the gas from the mud, particularly where some other difficulty has forced the use of a mud having a high viscosity. Stirring of the mud by gunning agitates the fluid and increases its power for carrying cuttings and sand. Passing the fluid over a series of baffles in a trough is effective, particularly when combined with a vacuum placed on the fluid. Another method is to force mud through jets and allow it to fall back into the pit.[9,7]

(Continued on Page 89)

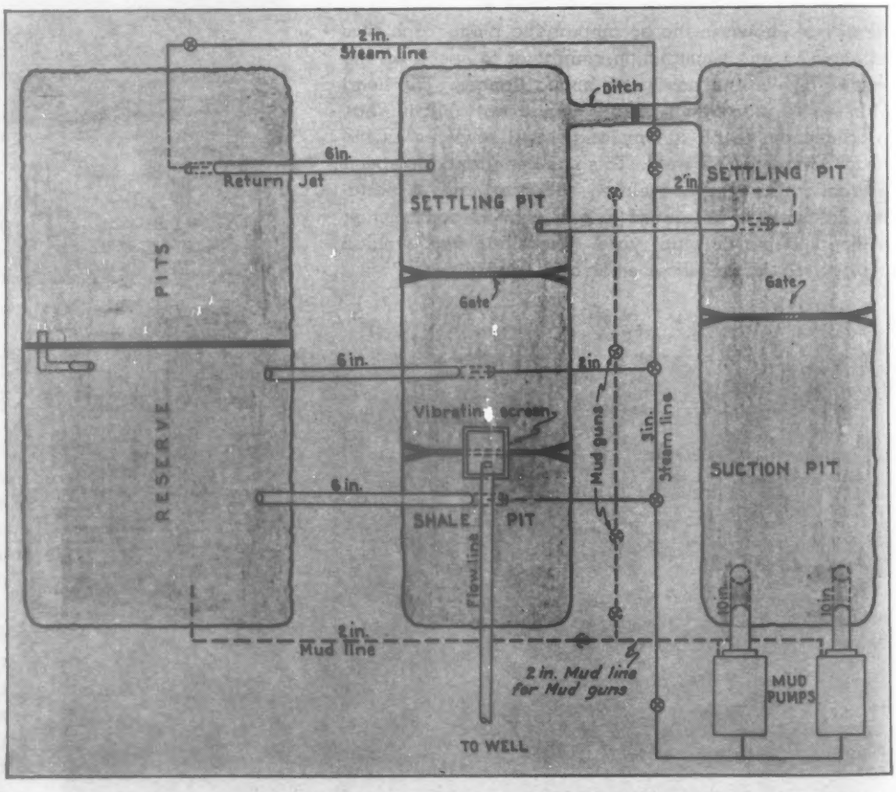


Fig. 1—Diagram of jet lines and mud guns used by one contractor in the Mid-Continent area fields

Aero-Geologic Mapping

Maintaining a policy that its services to the petroleum industry shall always be complete and available, S S C announces comprehensive facilities for making areal geologic and detail surface structure contour maps from aerial photographs.

This procedure is offered as a sound and rapid preliminary reconnaissance method to select interesting areas and to plan seismic programs that have no equals.

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WELL LOGS and FIELD DATA . . . . of Prospective Oil Areas

Western South Dakota

(Compiled by The Oil and Gas Journal)

LOCATION: Western half of South Dakota and neighboring states.

COMMUNICATIONS: Rail connections: The main line of the Burlington follows the north boundary of Nebraska. Two lines of the Chicago, Milwaukee, St. Paul & Pacific cross the area from Sioux Falls to Rapid City and along the north boundary of South Dakota. The Chicago & Northwestern, through Pierre and Rapid City, traverses the middle of South Dakota. There are no north-south lines in the area.

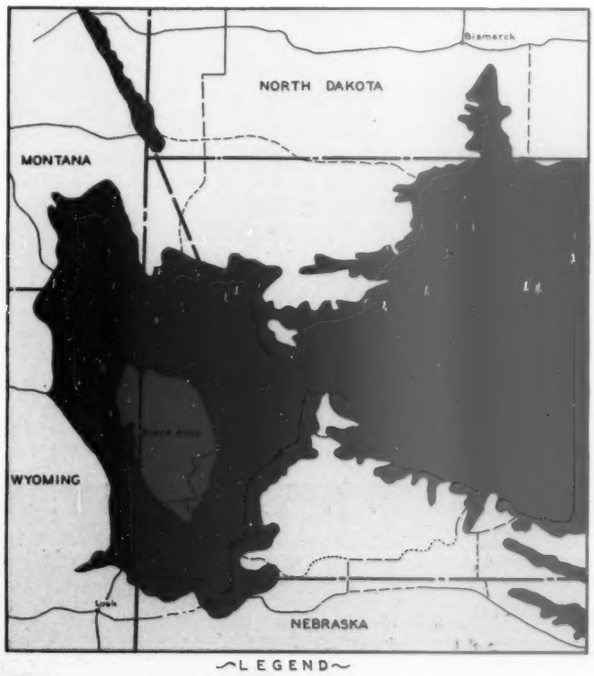
Road connections: There are few roads. Entry into the region from the south is by way of Lusk, Wyo., or Sioux City, Iowa. Several roads enter the state from Wyoming and Montana and from Minnesota. There are few improved north-south roads.

Airports are numerous but are generally little more than small landing fields.

Careful inquiry should be made regarding routes before entering the area in order to save time.

TOPOGRAPHY: The area as a whole is a plateau, sloping to the east. The Black Hills are, of course, rugged, but this region is probably outside of the area of prospecting. Broad, sandy river beds traverse the section from east to west, and there are many miles of bad lands which make travel almost impossible in parts of the area. Bridges are few in number and not of high-load capacity.

TOWNS: The principal towns with population in thousands are: Glendive, 5; Baker, 1; Lusk, 1, Wyo.; Pierre, 4; Rapid City, 11; Hot Springs, 3; and Deadwood, 4, S. Dak.



Geological Map of Western South Dakota

DEVELOPMENT: A few wildcats have been drilled in western South Dakota, but the area is virtually unprospected. In Montana the long Baker-Glendive anticline has produced gas for years and deep tests have found oil in the Madison (Pahasapa) and Jefferson (Three Forks) limestones, although not in commercial quantities.

The active Lance Creek field in eastern Wyoming is the principal nearby field. Other small fields are Osage, Mule Creek and Ant Hills.

GEOLOGY: Surface formations are Cretaceous and younger, the oldest being the Pierre shales, except in the Black Hills area where all of the formations to be encountered in the district are found on outcrop, including the pre-Cambrian. Small structures have been mapped along the Missouri River and the Baker-Glendive anticline is a well-known structural feature. This structure shows great thickening of the earlier formations indicating the existence of a basin in the northwestern part of the area up to the end of Spearfish time. Salt in the Spearfish and anhydrite in the Big Sandy series confirm this basin.

FIELDS: The most important field in the area is the Lance Creek field, which has produced over 20,000,000 bbl.

The pays and estimated recovery in barrels per acre and per acre-foot are: Dakota sand, 4,500 bbl., 69; Sundance, 10,000 bbl., 153; Minnelusa-Leo sand, 8,000, 133; Joss sand, 5,000, 100. The Dakota sand also carries about 20,000,000 cu. ft. of gas to the acre of gas pay.

Ant Hills produces from the Dakota sand, and has an area of about 40 acres. Mule Creek has an estimated ultimate recovery of 7,000 bbl. per acre from the Lakota or 275 bbl. per acre-foot, and also has some small production in the Minnelusa. The Osage field covers 10,000 acres, with an estimated ultimate recovery of 720 bbl. per acre from the shallow Newcastle sand (Muddy sand in Graneros shale).

Small amounts of gas are found in fresh-water wells in the vicinity of Pierre. Most of this comes from the Dakota sand or higher.

POTENTIALITIES: Structures.—Few studies have been made, the results of which are available which show potential oil structures. Key horizons are difficult to find in the outcropping formations and a part of the area is covered by drift and recent alluvium. Structures undoubtedly exist.

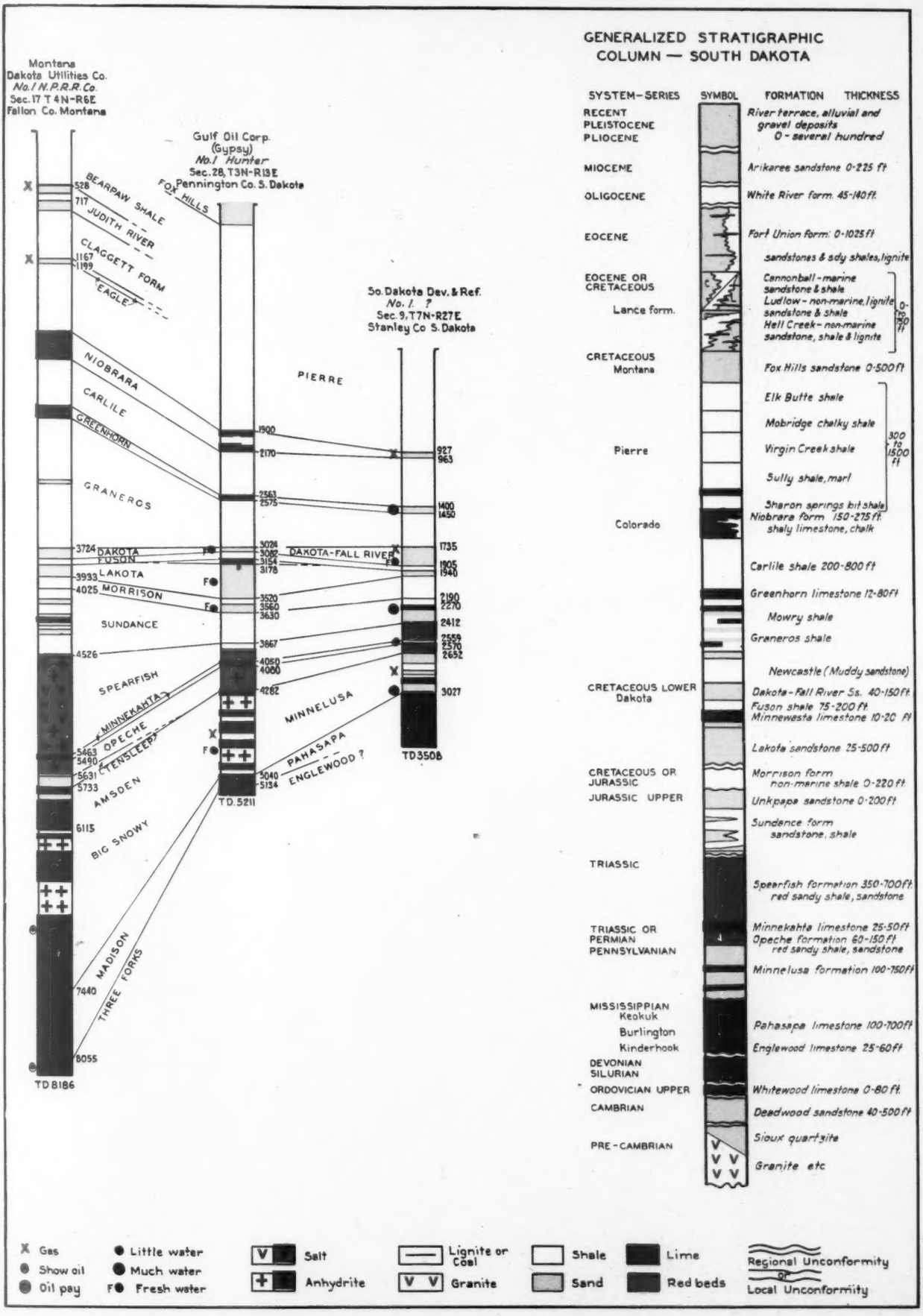
Owing to thickening of the formations and the absence of good reflecting horizons above the Paleozoic, geophysical methods have not been very successful, except in locating local highs upon the Baker-Glendive anticline.

Unconformities and stratigraphic traps.—The disappearance of many formations towards the east and the frequent unconformities in the section make the chances of locating production of this kind very interesting. One deterring factor is the presence of fresh water in the section. There is also a tendency for shales and limestones to become sandy towards the east and these formations might carry oil and gas. The frequent shows in the Pierre well indicate this possibility.

WATER: Surface supplies of water are scanty, but there are large quantities of artesian water available.

FUEL: Coal is scarce in the region although there are unlimited quantities of low-grade lignite. There are also no possibilities of obtaining gas, except along the Glendive-Rapid City pipe line.

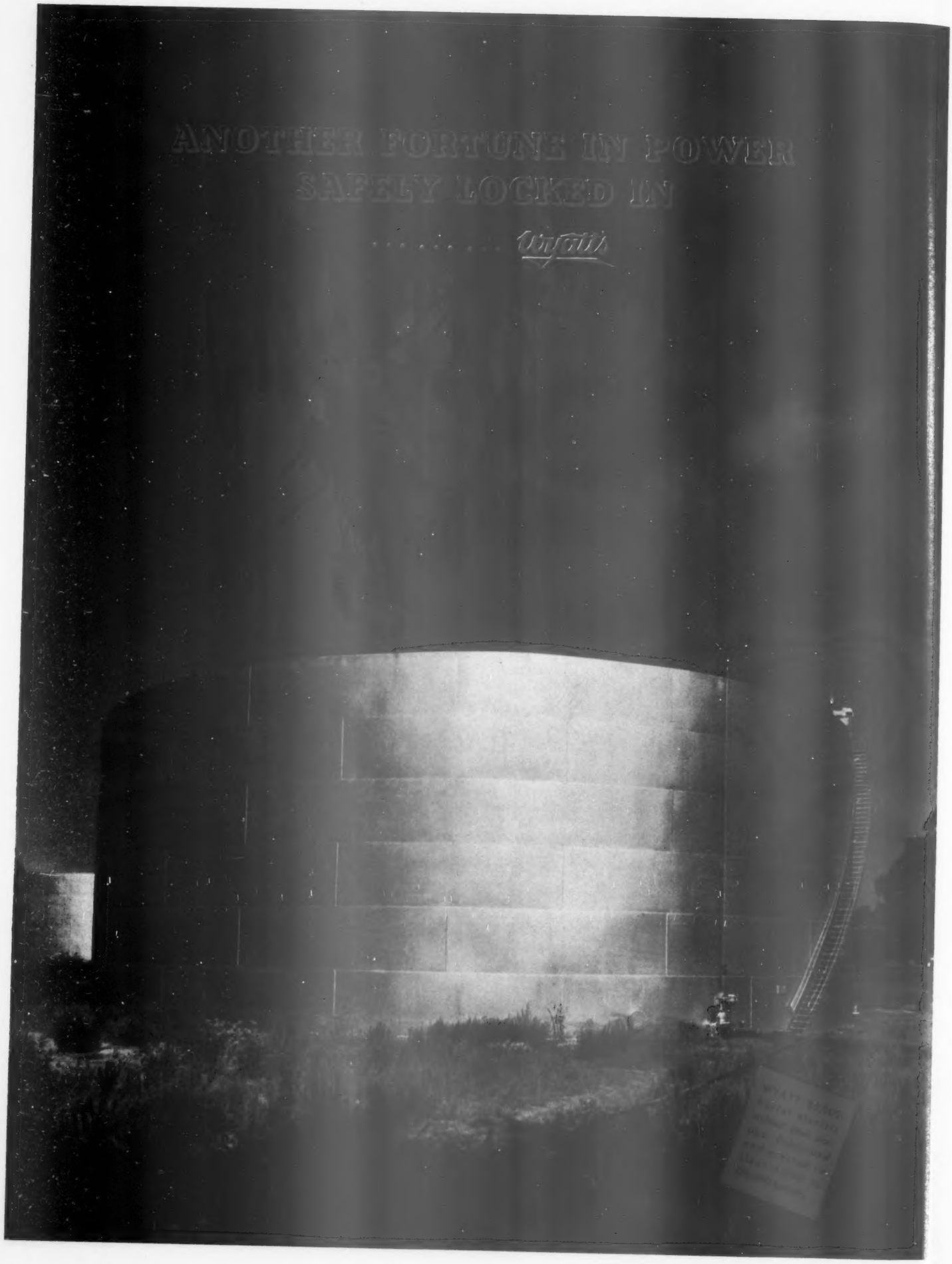
ELECTRIC POWER: Power is not available except near the larger towns.



GENERALIZED STRATIGRAPHIC COLUMN — SOUTH DAKOTA

SYSTEM–SERIES	FORMATION	THICKNESS
RECENT PLEISTOCENE PLIOCENE	River terrace, alluvial and gravel deposits	0 - several hundred
MIOCENE	Arikaree sandstone	0-225 ft
OLIGOCENE	White River form.	45-140 ft.
EOCENE	Fort Union form:	0-1025 ft
	sandstones & sdy shales, lignite	
EOCENE OR CRETACEOUS Lance form.	Cannonball - marine sandstone & shale Ludlow - non-marine, lignite sandstone & shale Hell Creek - non-marine sandstone, shale & lignite	0-1500 ft
CRETACEOUS Montana	Fox Hills sandstone	0-500 ft
Pierre	Elk Butte shale Mobridge chalky shale Virgin Creek shale Sully shale, marl	300 to 1500 ft
Colorado	Sharon springs bit shale Niobrara form shaly limestone, chalk	150-275 ft.
	Carlile shale	200-800 ft
	Greenhorn limestone	12-80 ft
	Mowry shale	
	Graneros shale	
	Newcastle (Muddy sandstone)	
CRETACEOUS LOWER Dakota	Dakota - Fall River Ss. Fuson shale Minnewesta limestone	40-150 ft. 75-200 ft 10-20 ft
	Lakota sandstone	25-500 ft
CRETACEOUS OR JURASSIC	Morrison form non-marine shale	0-220 ft.
JURASSIC UPPER	Unkpapa sandstone	0-200 ft
	Sundance form sandstone, shale	
TRIASSIC	Spearfish formation red sandy shale, sandstone	350-700 ft
TRIASSIC OR PERMIAN PENNSYLVANIAN	Minnekahta limestone Opeche formation red sandy shale, sandstone	25-50 ft 60-150 ft
	Minnelusa formation	100-750 ft
MISSISSIPPIAN Keokuk Burlington Kinderhook	Pahasapa limestone Englewood limestone	100-700 ft 25-60 ft
DEVONIAN SILURIAN		
ORDOVICIAN UPPER	Whitewood limestone	0-80 ft.
CAMBRIAN	Deadwood sandstone	40-500 ft
PRE-CAMBRIAN	Sioux quartzite Granite etc	

X Gas
● Show oil
● Oil pay
● Little water
● Much water
F● Fresh water
Salt
Anhydrite
Lignite or Coal
Granite
Shale
Sand
Lime
Red beds
Regional Unconformity
or
Local Unconformity


ANOTHER FORTUNE IN POWER
SAFELY LOCKED IN
Unitil

In some cases it becomes necessary to use a centrifuge machine for cleaning the drilling fluid, particularly where large quantities of sand are being encountered by the bit and the mud must be of a high viscosity. In one recent case the installation of a mud centrifuge enabled the operator to successfully complete a well after two other holes in the same area had been lost. The centrifuge can be located between the vibrating screen and the pits. In one California installation, a central plant was used and the mud brought from the pits in tank trucks to the plant where it was reclaimed.[8]

Before drilling the surface hole in many fields, it is necessary to make mud by adding an admixture having a high percentage of colloidal material. These fields are generally the ones in which a sand, particularly a poorly consolidated one, is encountered near the surface. Hayward[9] showed what happens when water or very thin mud is used to pump sand out of a well bore. The sand progresses upward in a series of whirls as long as the pump is in operation but as soon as the pumping is discontinued, it immediately settles back to bottom around the drill collar and drill pipe. Many drillers have been embarrassed when the drill pipe froze at a depth of one or several hundred feet, or during the drilling of the rathole. (It might be added that the drill pipe can stick as firmly at a few hundred as it can at several thousand feet and an attempt to jerk it loose may result in pulling down the derrick). The obvious remedy is to increase the viscosity of the drilling fluid while the drill pipe can be loosened by working (alternately pulling on the pipe and then releasing the strain) and by driving until the pipe becomes free in the hole; shutting down the pump for short periods and then starting it again will have a beneficial effect.

If a colloidal material has been added to the mud when drilling the surface hole, it should be preserved as it will greatly add to the mud-making power of the fluid while the lower formations are being drilled. Only a small amount of prepared mud is necessary to make the surface hole as the suction pit can be sealed off and the mud from the hole returned directly to it. After the surface pipe has been set, the colloidal mud can be jetted to another pit and stored so it will not be contaminated by the cement to be drilled. After the cement has been removed from the mud, the colloidal material may be added as needed.

Mixing Mud

Admixtures, native clays and chemicals are expensive and their effectiveness hampered by poor mixing. The annual mud bill of the drilling industry could be greatly reduced if greater care were taken. In some cases, operators have become antagonistic toward some particular mud treatment because the results expected were never realized due to improper mixing.

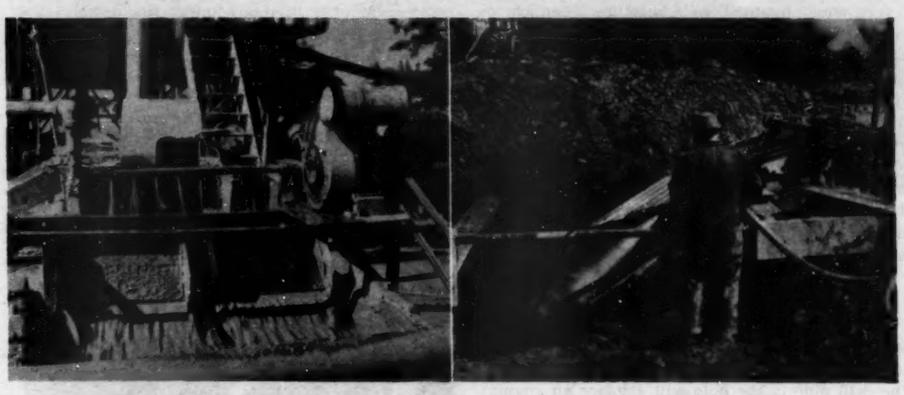
The most common method of mixing mud in the United States is by the "hopper mixer." P. Evans & A. Reed[10] discuss numerous other methods of making mud, including the selection of clay and shale deposits and the grinding of the material. In the use of the hopper mixer, only finely ground materials can be used but it has the advantage of rapidity and intimate mixing.

A hopper mixer can be made on the location by inserting a jet through the curved portion of an L, (4 to 8-in.) with the jet being directed toward the discharge (see Fig. 2) opening. A hopper with sloping sides is screwed into the one opening of the L and a reducer and pipe to the pit in the other end. A stream of water is forced through the jet at high velocity and pulls any material placed in the hopper down into the stream.

The authors mentioned above point out that the best product can be obtained with a hopper mixer by having the discharge empty into a paddle mixer with the paddles being kept in rapid motion. Another method of securing a well-mixed mud is by using a series of three hoppers, the first discharging into the second and so on. This type mixing system is not often used in the United States.

Generally the hopper mixer is placed close to the pumps with its discharge into the suction pit; the high-pressure fluid stream is obtained from the pump through the release valve or from the manifold going to the mud guns. Where only one mud pump is used, circulation in and out of the hole must be stopped. Most rigs on deep tests have two mud pumps and one can be used for circulation while the other can be used for mixing mud. On troublesome wells, a third pump may be provided and used solely for the mixing process.

One of the greatest mistakes of crews making mud comes from the idea that any admixture or native clay should be added to the hopper at the maximum rate the jet in mixer will carry it away. The material is dumped into the hopper until the mixer clogs and backfires and then the rate of addition is reduced until the mixer takes it smoothly. This method is particularly wasteful when a bentonitic material is being used as only the outside of the particles will be wet and instead of a colloidal or near-colloidal fluid a suspension of bentonite particles will result. The amount of bentonitic admixtures wasted annually is evident when one visits a completed well after the mud has been removed from the pits and finds a huge pile of admixture in the suction pit where the mixer discharged it. The admixture was added in a hurry with the result it never was properly mixed and settled out before it reached the pump suction.



Eight high-pressure jets used for putting water into the mud stream just before it passes over the screen. This is much more effective than running a single 2-in. stream into the mud. Right: Cleaning shale from pit with steam jet and high-pressure water hose. The shale is jetted into the reserve pit. A small steam turbine drives the vibrating screen

Type of Mixers

The rate at which any material can be mixed depends to a great extent on how fine it is ground and on the fluid being mixed with it. Actually, the best procedure is to premix the additive with water or mud and then, after it is thoroughly mixed, add it to the fluid being circulated. Some operators use a 15-bbl. watering tank for preparing the admixture; others use a special steel tank with as much as 100-bbl. capacity, or a small pit. One California operator uses several oil drums with paddle mixers driven by electric motors for preparing the admixture. Aging of the mud, when possible, is helpful as freshly mixed mud is unstable and tends to settle.

On most wells a hopper-type mixer is used, the admixture added and the discharge run into the tank from which it is recirculated through the mixer until the particles are broken down and a colloidal fluid results. Constant gunning of the fluid in the tank or pit while the mixing is in progress will help and the agitation by steam will also aid in developing a smooth, homogeneous fluid. Viscosity, weight and other qualities of the mixture can be built up to the point where, when it is added to the circulating mud, the desired standards will be produced. The premixed fluid should be thoroughly mixed with the mud before it is pumped into the hole.

If premixing is not adopted the admixtures should be added as slowly as possible, a fine trickle of ground material into the hopper being the best. The higher the pressure on the mixer

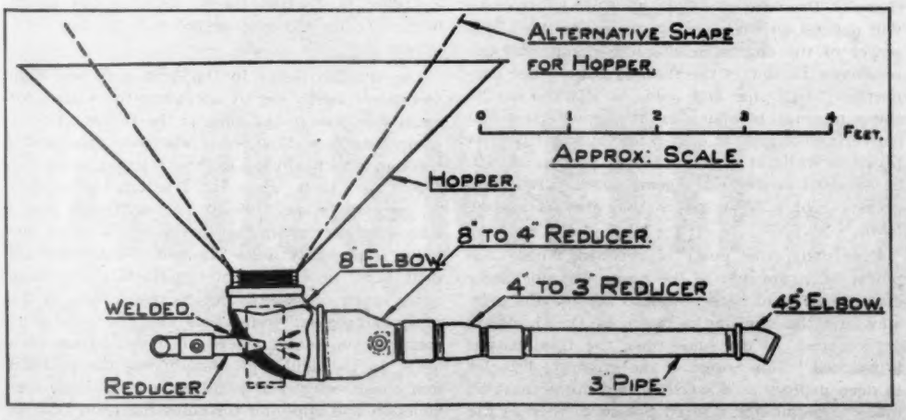


Fig. 2—Drawing of "hopper" mixer used for mixing native clays and admixtures with rotary drilling fluid (After P. Evans and A. Reid)

jet the better the mud will be mixed. The pit receiving the mixture from the hopper should be gunned continuously to further break up the particles and prevent any settling. If inadequately mixed mud gets into the circulation pump no damage will result except the partial loss of effectiveness of the admixture.

Chemicals can be added by diluting with either water or mud and then run into the flow line before the fluid passes over the vibrating screen or into the pit.

If a small quantity of admixture, chemical or native clay is to be added to the mud it should not be dumped in a single batch but should be fed continuously at a rate which will allow for at least one complete circulation of the mud while the mixing is in progress. If larger quantities are to be used, the rate at which the material is added should be as slow as possible so the quality of the mud is raised gradually and evenly. In some cases the mud must be entirely replaced and the new mud should be thoroughly mixed before an attempt is made to establish circulation.

Quantity of Mud in System

The amount of mud in the circulating system will depend on the size and condition of the pits and the depth, size, and condition of the hole. The drill pipe in the hole will displace an amount equal to the body of the pipe plus the volume occupied by the tool joints. In many cases the displacement of the drill pipe can be ignored, but it is often desired to know what this amount is. The calculations are simple and are as follows:

$$\pi = \frac{(D_2+D_1)}{2} \times \frac{(D_2-D_1)}{2} \times L = V$$

V = volume occupied by pipe
π = 3.1416
D_1 = inside diameter of pipe
D_2 = outside diameter of pipe
L = length of pipe

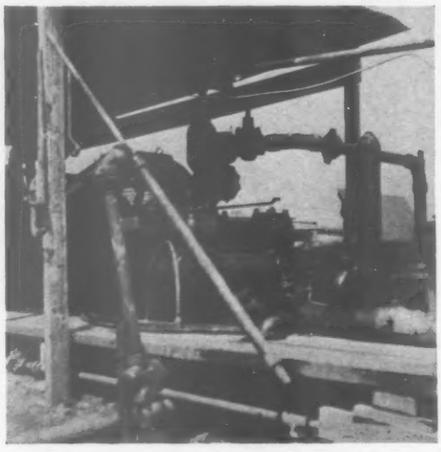
For 4½-in., 16.60-lb. drill pipe having a wall thickness of 0.337 and full-hole tool joints, displacement per stand of 90 ft. is equal to 2.70 cu. ft. (20.19 gal.), or 0.03 cu. ft. (0.224 gal.) per foot. Displacement of 9,000 ft. of such drill pipe amounts to 270 cu. ft. or 2,019 gal. The calculations include the volume occupied by the tool joints but exclude the upsets on the pipe.

To compute the volume of mud in the drill pipe or the hole, only the formula for a cylinder is needed. $V = 3.1416 \times (D/2)^2 \times L$. Where V = volume, D = diameter of hole or drill pipe, and L = depth of hole, or drill pipe. A table showing the approximate volume of mud in the hole in cubic feet is given in Section K of the Drilling Equipment Directory. To obtain the volume of mud in the pits, multiply the length, width, and depth together.

Obtaining the time required for circulation is not as easy as it would appear, as caves greatly increase the volume of the mud in the hole and the time needed for the mud to go from the pump to the bottom of the hole and back to the surface. To determine the theoretical time for circulation it is necessary to compute the volume of mud in the hole, less the volume occupied by the drill pipe and divide this by the displacement per cycle of the pump and the number of strokes per minute. For 9,000 ft. of 8¾-in. hole with 4½-in., 16.60-lb. drill pipe and a pump having a 20-in. stroke, 7½-in. liners and operating at 40 s.p.m., this becomes 45 minutes. For filling the drill pipe only, 8.4 minutes are required. Time required for the mud to get to the surface after leaving the bit is therefore 36.6 minutes.

In calculating the time for circulation, some authorities allow only 80 per cent hydraulic efficiency for the pump. This may be too low or too high, and is an arbitrary figure. The volumetric efficiency for any pump can be obtained by noting the time required to fill the drill pipe above the float valve after a new bit has been run to bottom and then dividing the calculated amount by this figure.

In actual practice, the time required for circulation is generally obtained by introducing some means of identification into the mud and then recording the time required for the marked fluid to go from the pump back to the surface. Dyes have been used extensively for this purpose but more commonly in this country raw grain (oats or wheat) is employed. Another method is to purposely change the character of the mud, particularly by increasing the viscosity or weight sharply, and then taking samples very close together to obtain the exact time of return[10] Not only the amount but the general location of caves in the hole can be obtained by comparing the calculated time of return with the observed time. In some cases the calculated time will be almost exactly the observed time but it may vary as much as several hours. Generally, the observed time will be close to 20 per cent more.



Replacement of regular L's by a streamlined type greatly reduces loss in pressure on the surface. Mud gun in foreground has special L which prevents leakage when it is raised or lowered. Suction on pump is equipped with air chamber, one method of increasing the volumetric efficiency of the pump

Work of Pump

The pump referred to above (7½-in. bore and 20-in. stroke) delivers approximately 76 cu. ft. (570 g.p.m.) when operating at 40 s.p.m., the actual capacity depending on the slip which must be deducted from the displacement to obtain the capacity. Pressure at which this fluid is delivered will depend on the steam pressure, or the horsepower of the engine driving the pump, and the resistance to flow of the fluid in the surface connections, drill pipe and hole. At shallow depths the pump may be operating at normal speed and delivering the mud at only a few hundred pounds pressure while at 6,000 ft., 850 lb. per sq. in. will be required to obtain the same speed. Circulation pressures of 1,200 lb. per sq. in. are not uncommon.

Eventually, the point is reached where the power or steam end of the pump can no longer deliver sufficient horsepower to put up this pressure and the size of the liners in the fluid end are reduced. At the same time, the fluid output is reduced.[11] This is one of the greatest obstacles in deep drilling as a sacrifice in volume must be made to obtain the desired pressure whereas the desirable thing would be to increase the pressure while suffering no volumetric loss.

Principal force to be overcome by the pump in addition to the friction in the hole, drill pipe, surface connections and water courses is the head due to the difference in weight per unit volume of the fluid being pumped into the drill pipe and the fluid being pumped out of the hole. This increase in weight is due to minute particles of formation dispersed in the mud and the larger particles which the mud is carrying. Where rate of penetration is high, this factor becomes considerable. At a drilling rate of 1 ft. per minute, 114 cu. in. of the formation is being removed. This rock will have specific gravity varying from 1.5 to 2.5.

With fluid being delivered at 570 g.p.m., its specific gravity is increasing through the addition of the cuttings by 0.004 (assuming an average of 2.28 sp. gr. for the formation) and the pressure per square inch per 100 ft. is increased by 0.2 lb. where light mud is used, the percentage increase is greater than with heavy mud. In addition there is an abundance of material knocked from the wall of the hole and even when the rate of penetration is low the pressure required for this purpose alone is in the neighborhood of 200 lb. per sq. in. when drilling in a moderately deep hole. At times the weight of cuttings in the hole exceeds the weight of a fluid in the drill pipe. By increasing the rate of flow, this factor is automatically reduced.

Streamlining Pipe Turns

Surface connections between the pump and the swivel often include as many as 15 turns of 90° each and approximately 150 ft. of 4-in. pipe and hose. The friction of fluid in pipes increases nearly as the square of the velocity and consequently when pumping at high rates, the losses due to these factors are considerable.[14] At 570 g.p.m. the velocity of the fluid through 4-in. pipe is 14.4 ft.[11] per sec., while the friction head caused by making a 90° turn is 2.81 ft. and the friction loss is 1.38 lb. per sq. in. Multiplying these amounts by 15 gives the total loss caused by this factor in the system. One engineer observed that it took 180 lb. per sq. in. to move 540 g.p.m. of 10.2-lb. per gal., 38-sec. A.P.I. mud from the pump to the bottom of the kelly joints.

By increasing the size of the pipe used in the mud lines, elimination of some of the elbows in the line and installing new streamlined elbows, these losses can be substantially reduced. At one rig visited recently only six 90° turns and two 180° turns were observed, and all of these were of the streamlined variety. This type connection also reduces the number of delays due to cutting-out by the mud. New-type hose connections are also an improvement as they reduce the number of restrictions and result in streamlined flow and a saving in friction losses. Another aid would be increasing the size of the hole in the kelly joint.[12]

The friction losses in the drill stem are high as one can easily see by accepting the values for clean iron pipe in the table in the Drilling Equipment Directory. For 4-in. clean iron pipe and a throughput of 570 g.p.m. the friction head per 100 ft. is 8.47 ft. while the friction loss is 19.67 lb. per sq. in. per 100 ft. The drill pipe has a smoother interior than ordinary iron pipe so this value is probably high. The use of internal-flush drill pipe, or nearly internal-flush pipe, eliminates much of the loss due to restrictions in the pipe. The regular or full-hole joint, because of its construction, causes a series of constrictions each 30 ft. in the drill pipe. Simplifying the problem and considering each joint as being a single constriction and applying formulas for fluid flow in pipe gives an impressive figure for losses due to this cause. Drilling contractors have eliminated

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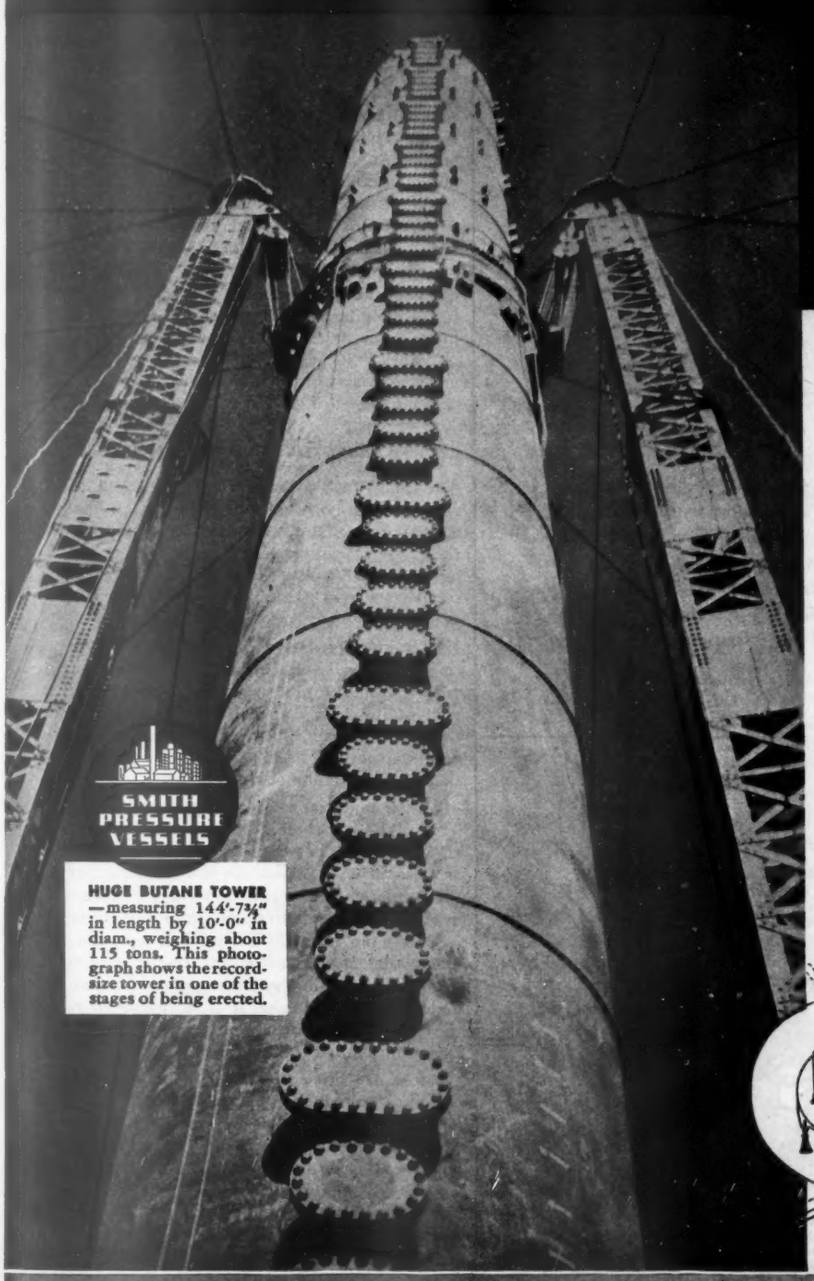

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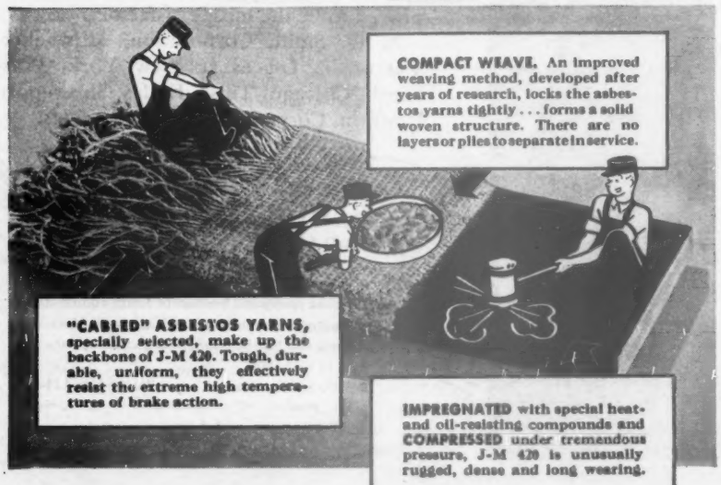
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JM Johns-Manville 420 ROTARY LINING

some of their mud troubles by replacing the standard or full-hole joint drill pipe with the internal-flush type.

When the fluid reaches the bit it passes through the water courses, generally three in number. As a rule these openings will be ¾ in. in diameter although for special purposes other sizes may be used. The purpose of the water courses is to induce a jetting action on the cutting teeth of the bit and keep them clean. With 570 g.p.m. being delivered to the bit, the velocity through each ¾-in. opening is 136.8 ft. per second.

On many occasions the water courses will be reduced without due thought being given to the result. The intention is to increase the velocity of the fluid striking the bit by increasing the pump pressure but generally this results in the speed of the pump being reduced, less mud is delivered to the bit and the gain due to any slight increase in the velocity at the bit is offset by the reduction in the velocity of the fluid carrying the cuttings out of the hole. The velocity in the hole is proportional to the area of the annular space, if the number of gallons per minute is reduced or the annular space is increased, the movement may not be sufficient to prevent slippage of the cuttings.

Other Factors Affecting Mud

In many cases the load on the mud can be reduced and more latitude in the weight-viscosity range obtained by watching the speed of rotation, weight on bit and rate of penetration. It occasionally happens that on a well that has nearly "perfect mud," trouble is experienced with the hole caving.

High rotating speeds should not be attempted unless the drill stem is designed for them as the whipping of the pipe will knock pieces from the wall of the hole. An Oklahoma operator found that at 300 r.p.m. of the bit, trouble was experienced in getting in and out of the hole; reduction to 225 eliminated the trouble.

Where high rates of penetration are possible, it is often advisable to make haste slowly and allow the hole to be at least partially sealed off as it is drilled. When the bit is going through the formation at the rate of 1.5 ft. per minute the mud has little time to do anything but its best in carrying the cuttings away. One operator estimates that the mud has a carrying capacity of 0.1 lb. per gallon and tries not to exceed that amount. In other cases it is advisable to reduce the pump speed to prevent washing out a large cavity in a soft formation.

There are numerous other items which affect the mud both in and out of the hole. The foregoing are mentioned as they are the ones which can obviously be controlled by the driller at the well or the operator can control through the selection of equipment. With all of these conditions at an optimum, the mud still has ample work to perform.

Bibliography

6. Stockman, L. P., "Pefrect New Combination Degasser and Agitator," The Oil and Gas Journal, Mar. 21, 1940, p. 63.

7. Simons, Harry F., "Degassing Drilling Fluid Prevents Blowouts," The Oil and Gas Journal, Feb. 8, 1940, p. 43.

8. Sanders, T. P., "Long Usage Proves Success of Centralized Mud Plant," The Oil and Gas Journal, Mar. 4, 1937, p. 32.

9. Hayward, J. T., "Cause and Cure of Frozen Drill Pipe and Casing," The Oil and Gas Journal, June 5, 1937, p. 42.

10. Evans, P., and A. Reed, Transactions of Mining and Geological Institute of India, 1936.

11. Sanders, T. P., Drilling Equipment Directory, M-6.

12. Brantly, J. E., Rotary Drilling Handbook.

13. Warren, J. E., "Causes, Preventions and Recovery of Stuck Drill Pipe," A.P.I., Houston, Tex., spring meeting, 1940. Also discussion following paper.

14. Nordell, Carl H., "Curved Flow in Conduits of Constant Cross-Section," The Oil and Gas Journal, May 16, 1940, p. 117 and "Improved Conduit Bends Reduce Frictional Losses," The Oil and Gas Journal, June 13, 1940, p. 50.

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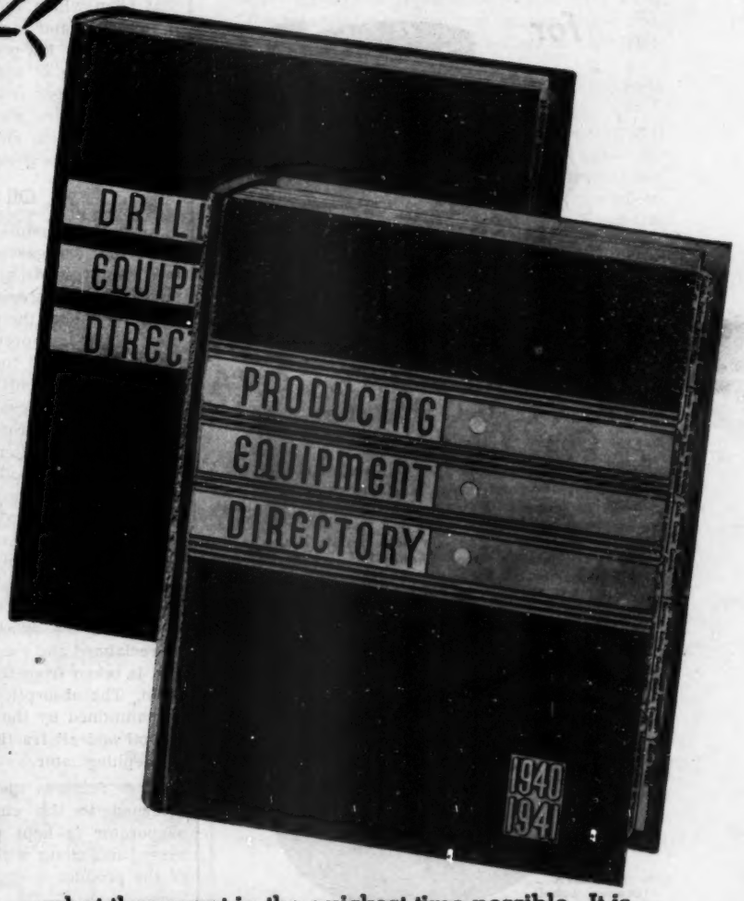

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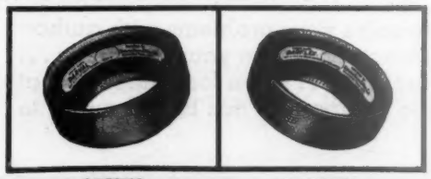

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New Recycling Plant in La Rosa Field Has Unusual Features

(Continued from Page 84)

provides suction for the high-pressure reciprocating pump circulating to the high-pressure absorbers. The absorption oil for all absorbers is circulated in a single closed system. The turbine-driven centrifugal pump picks up the lean oil from the bottom of the still after it exchanges heat with the incoming rich oil, passing it through the lean-oil coolers, after which the stream is split, one stream to the intermediate and low-pressure absorbers, and the other to the reciprocating high-pressure lean-oil pump suction.

The low-pressure gas handled by the low-pressure absorber is that taken from separators of crude-oil wells of the field and brought to the plant through the low-pressure gathering system. This gas is produced from different sands than that from which the high-pressure distillate gas is produced and is not involved in the recycling project. The low-pressure separator is operated at a pressure of approximately 35 lb., at which pressure the gas is received from the field. The overhead residue gas from this absorber is taken from the system and used as engine and boiler fuel, any excess going to the flare.

Oil Circulation

Rich-oil bottoms from the low-pressure absorber are charged with the rich-oil stream from the high-pressure system to the evaporator. A pump on the stream from the low-pressure absorber equalizes the pressure of that stream with that of the high-pressure stream. The combined rich-oil stream to the evaporator is preheated to a temperature of 404° F. in an exchange with hot lean oil from the evaporator and steam preheater.

Lean oil withdrawn from the lower part of the evaporator, after an exchange of heat with the incoming rich-oil stream, is returned directly to the circulating system. In addition, from the base of the evaporator, a stream of mineral-seal oil carrying steam-condensate accumulations is taken to an oil reclaimer, consisting of a small steam-heated still and water separator. Temperature of this still is maintained at desired levels to control the specifications of the absorption oil reclaimed and run to storage. Water accumulation is taken from the separator leg to the water basin. The absorption-oil level in the evaporator is maintained by the return to the evaporator of gas oil and oil fractions that are carried over to the dephlegmator.

These features insure that the absorption oil returned to the circulating system from the evaporator is kept properly conditioned at all times, and along with this additional production of the product is obtained.

The dephlegmator is equipped with two outside dehydrators, one for the lower, or kerosene side stream, and the other for the naphtha side stream. Outlets are provided in the side of the dephlegmator at the respective tray levels for the circulation of these streams to the dehydrators. The installation is such that either or both of the streams, after dehydration, can be returned to the dephlegmator or passed to the separate kerosene side-stripper. It is also possible to control the proportionate volume of the respective streams passed to the side-stripper or returned to the dephlegmator.

It is by this control of the two side streams that increased flexibility is attained in fractionation. Not only can various combinations of products be varied readily but also the specifications of the individual products can be greatly altered as desired. Heavier fractions, including mineral-seal oil, are withdrawn from the lower part of the dephlegmator and returned to the lower part of the evaporator for additional stripping, and reclamation of mineral-seal oil carried over to the dephlegmator.

Condensate accumulations in the two dephlegmator dehydrators and in the bottom of the dephlegmator itself are drawn off continuously to the condensate recovery system by means of level controls.

Overhead gasoline fractions are passed through the primary and secondary coolers to the raw-gasoline-make tank, part of the stream being diverted to dephlegmator reflux. A pressure of 33 lb. is held in the raw-make tank, in which a substantial volume of gases is flashed to be picked up by the 225-hp. recompressor, discharging them to the depropanizing column in a separate stream from the liquid stream from the raw-make tank. The raw-gasoline stream is preheated in an exchange with the stabilized gasoline bottoms from the debutanizer column.

This operation facilitates handling of the large volume of light ends that are carried in the stream to the raw-make tank, making it unnecessary to hold these lighter fractions in liquid form. The recompressor boosts the pressure of these flashed gases to 300 lb. Temperature of the gases at discharge is 240° F.

Overhead temperature of the depropanizing column is set to retain the butanes and lower fractions, allowing the propanes and higher fractions to escape. Insuring maximum stripping, the overhead propane and lighter gases are taken through cooling coils to a depropanizer reflux accumulator held under back pressure of 300 lb. Fractions held in this accumulator then are returned to the top of the depropanizing column.

Butanes and lower fractions retained in the depropanizing column then are passed to the butane column, from where the butanes are taken overhead through coolers to storage held under pressure of approximately 60 lb. The stabilized gasolines retained in the column are cooled in an exchange of heat with the raw-gasoline stream to the depropanizing column and run to storage.

An incidental special feature of the plant is a 10,000-gal. rerun tank. Lines to this tank from various key points in the plant system make possible the diversion of the stream to this tank from any of the key points should anything go wrong with the control to throw the stream before that point off specification. This prevents throwing an entire run off specification, thus minimizing the amount of material to be rerun.

The power plant consists of three 125-hp. 300-lb. working-pressure Kewanee oil-field-type boilers, each equipped with four John Zink burners. Boiler-feed water recovered from the closed condensate-recovery system is preheated to a temperature of 320° F., minimizing boiler duty. Only a very small volume of makeup water is required. Conservation of water is an important factor for this plant as good water is not readily available in the area although there is an ample supply for cooling purposes.

Electric power for general use is generated by a 480-volt generator driven regularly by a 25-hp. turbine, operated by 30 lb. gas pressure. The power plant includes a Waukesha gas engine as a standby. As a precaution against explosion the turbine is mounted on the outside of the power-plant building, driving the generator by a drive shaft through the wall.

Storage facilities include six 1,000-bbl. capacity rundown tanks, of which four are for gasoline, one for kerosene and the other for mineral-seal oil; four 250-bbl. butane rundown tanks, and one 10,000-bbl. Hortonspheroid. The butane tanks are held under pressure of 100 lb., and the gasoline tanks at 35 lb. Pipe-line connections are provided from the field to Corpus Christi, in which production of the plant can be transported to the latter point. The plant was designed and built by Gasoline Plant Construction Corp. of Houston, Tex.

QUESTIONS ON TECHNOLOGY

By W. L. NELSON, TECHNICAL EDITOR

Simplified Flow Diagram

Solutizer Sweetening Process

Will you please tell me what the solutizer method of treating sour gasoline is that the Shell Development Co. has developed and how this method works? I would also appreciate it if you would tell me what the chemical reactions are which take place in this method and what chemicals are used.—G.J.

This process is an outgrowth of the familiar method of dissolving sulfur, hydrogen sulfide and mercaptan hydrocarbons from sour gasoline by washing the gasoline with caustic soda. The difficulty with the plain caustic wash is that only part of the mercaptans are dissolved into the caustic and hence the gasoline must be subjected to further sweetening treatments.

The process differs from the common caustic wash only because chemicals such as sodium isobutyrate have been added to the caustic solution in small amount. The result of this small change is, however, very important, because it causes the solution to extract nearly all of the mercaptans and thus avoids the necessity of further sweetening treatment. Of even greater significance the process removes the sulfur compounds from the gasoline whereas most other sweetening treatments succeed only in changing it into a less harmful form (disulfides) or in other words do not reduce the sulfur content of the gasoline. The reduction of sulfur by the solutizer process results in a product which has a higher octane number and which is highly susceptible to the effect of tetraethyl lead.

The process is primarily one of physical solution or extraction of sulfur impurities into a solution and the removal of these impurities from the solution by means of steam stripping as shown in the flow diagram. Although chemical compounds may be formed in the solution, these are of no great practical significance. The solution is recycled continuously without loss except by mechanical entrainment. Free sulfur and hydrogen sulfide are removed by a precaustic wash, mercaptans are removed by the solutizer solution and the mercaptans are eliminated from the solution by a steam stripper. The process has been discussed by D. L. Yabroff and others; in The Oil and Gas Journal by L. E. Border, Page 36, July 18, 1940.

Specifications of Motor Oils and Fuels

Do you have available any information on the analyses of motor oils and fuels? I am especially interested in the analyses of used motor oils.—V. M. D.

You have struck right at the heart of any business when you inquire as to the practical significance of its products. Yet, the experts of the oil industry cannot agree upon the direct or precise significance of many of the common tests. The situation is so complicated that a number of sources of information must be employed. For test or analysis methods, refer to:

A.S.T.M. Petroleum Products and Lubricants, Am. Soc. for Testing Materials, 260 South Broad Street, Philadelphia, Pa., 1939, $2.

For specifications of products refer to the above and to:

Federal Stock Catalog VV-O-496 (Internal-Combustion Engines), 5 cents.

Federal Stock Catalog VV-G-101a (Motor Gasoline), 5 cents.

Federal Stock Catalog VV-M-571a (Motor Fuel V), 5 cents.

Also many other specifications of oils, all from Superintendent of Documents, Washington, D. C.

For practical significance of tests or properties:

A.S.T.M. The Significance of Tests of Petroleum Products (1934), $1.

A.S.T.M. Evaluation of Petroleum Products (1940).

Petroleum Refinery Engineering, McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York (1936), $6.

No single one of the references is complete but Petroleum Refinery Engineering is more complete.

Several of my own articles in The Oil and Gas Journal pertain directly to the significance of tests. Among these are: Carbon Residue, January 11, 1940, Page 48; Viscosity, November 23, 1939, Page 46; Flash Point, September 1, 1938, Page 42; Distillation Tests, June 16, 1938, Page 62; and Color, June 2, 1938, Page 74.

Suitability of Filter Clay

I have clay deposits with the following analysis:

	Kaolin	"Red Ball"
Silica	46.2	52.0
Alumina	38.9	36.0
Iron oxide	none	0.8
Others	.....	.....

If this clay has any commercial value, I would like to get in touch with a user.—W. R. R.

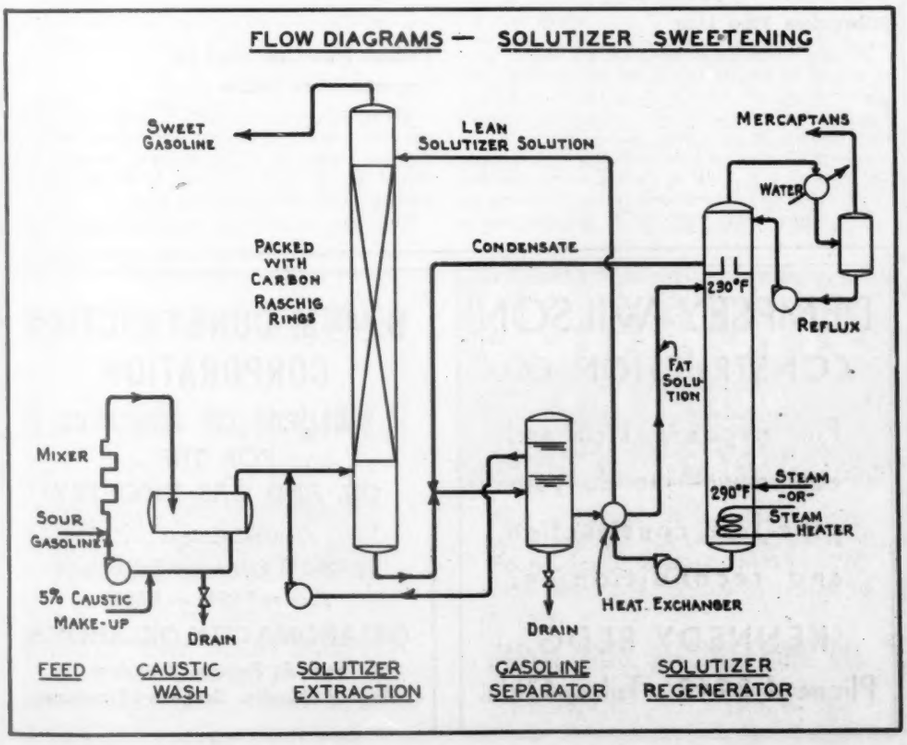
The chemical analysis of a clay, as above, is of very little value in determining its decolorizing properties. It is said that the best clays contain over 50 per cent of silica and that the analysis should fall within the ranges given below, but it is also true that earths of the analysis given below may not be good filter earths or may lack entirely the property of adsorption. The range of composition of Florida fuller's earth is about as follows:

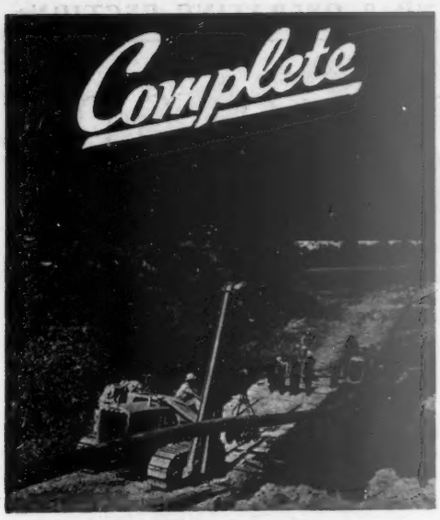
	Per cent
Silica	44 -72
Alumina	5 -33
Iron oxide	1 -15
Calcium oxide	0.3- 7.4
Magnesium oxide	0.4- 4.3
Alkali oxides	0.4- 8.3
Water	4.3-25.0

However, useful earths whose analysis does not match the above have been found.

In order to evaluate a clay, it is necessary to compare the clay with other standard clays by laboratory experiments. All of the clays are used to decolorize a single oil under exactly the same conditions. Such assistance can be had from a number of oil laboratories and consultant engineers.

It is not the function of this page to assist in making business connections. However, it may be said that you will have to contact the various refiners, etc., directly because the clay-supply companies usually market clays from their own deposits. A list of petroleum refiners in the United States was published in The Oil and Gas Journal of March 28, 1940.





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Pipe-Line Activity

Pan American Program Calls For Laying of 262 Miles

HOUSTON, Tex.—Pan American Pipe Line Co. has announced plans for laying a 262-mile trunk oil pipe line from the East Texas field to Sinco, east of Houston, where it will connect with a 12-in. trunk line which the company operates from that point to Texas City. The line will consist of approximately 58 miles of 10-in. pipe from the East Texas terminus to a point near Douglass, Nacogdoches County, and approximately 137 miles of 12-in. pipe from there to Sinco.

Although final right-of-way has not been determined, the line will follow the most direct route possible, with the East Texas terminus being at a point near Kilgore. The completed system will include complete gathering facilities in the East Texas field, part of which will be purchased and part laid new, and a branch line from the Cayuga field, Anderson County, which will tie into the trunk line at Douglass. The latter line will be 67 miles of 8-in. pipe.

The new line is being laid primarily in order that Pan American may handle through its own facilities crude oil purchased in the East Texas and Cayuga fields. At present, East Texas crude delivered at Pan American Refining Co.'s refinery at Texas City is purchased by Stanolind Oil Purchasing Co., gathered through the combined facilities of Humble Pipe Line Co., Stanolind Pipe Line Co. and Pan American Pipe Line Co., and then transported to Sinco through Stanolind Pipe Line Co.'s trunk line. Cayuga crude at present is being purchased by Pan American Pipe Line Co. and delivered through Stanolind's facilities to Pan American's line at Sinco.

On the trunk line there will be a main station at the East Texas field terminus, and three intermediate stations, one of which will be near Douglass, where the Cayuga branch will tie in. The only station on the Cayuga branch will be in the Cayuga field.

Pan American's 12-in. line from Sinco to Texas City, a distance of approximately 30 miles, also serves the South Houston and Gillock fields. The company also recently took over operation of a separate 8-in. line, formerly operated by Stanolind Pipe Line Co., from the Hastings field to Texas City.

Construction Progresses on Milwaukee Pipe Line

Dempsey-Wilson Construction Co. has laid 27 miles of pipe in the construction of the 162-mile 20-in. pipe line for Natural Gas Pipeline Co. of America to Milwaukee, Wis. This contractor has a contract for 100 miles from Geneseo, Ill., to a point near Belvedere, Ill.: the remaining 62 miles has been contracted by I. C. Little. The work of I. C. Little is starting near Milwaukee; his crew will go southwestward toward Belvedere, Ill.

It is expected that work on the complete looping of the company's system between the Panhandle and Chicago will probably get under way shortly after the first of the year.

Work Under Way on Stanolind's 180-Mile Line to Wood River

Jones & Brooks, operating as Texokan Co., started last week on the laying of two 12-in. lines across the Mississippi River near Wood River, Ill., as part of a construction project for Stanolind Pipe Line Co. The project involves the construction of 180 miles of line in a program which will provide a means for shipping oil from La Plata, Mo., to the Standard Oil Co. of Indiana refinery at Wood River. This contractor is starting this week on the actual construction of 45 miles of 12-in. main line which consists of 3 miles on the Illinois side of the river and 42 miles on the west side in Missouri. The work of this contracting firm is directed by R. E. Pitts, superintendent, who has established headquarters at Alton, Ill.

Balance of the line has been contracted by O. C. Whitaker Co. which put two spreads on the job at the end of September. The Whitaker organization has field offices at Marcelline and Monroe City, Mo.

Columbia Gas & Electric Completes New Project

The 140-mile natural-gas line from Monaco, Pa., to Olean, N. Y., is being completed this week for Manufacturers Light & Heat Co., Manufacturers Gas Co., and Pennsylvania Fuel Co. which are subsidiaries of Columbia Gas & Electric Co. The work in New York State was done by Rich & Co. Most of the line was laid in Pennsylvania where the job was contracted by Williams Brothers Corp., operating under the name of Apex Construction Co.

General Petroleum Plans Line in Wyoming

General Petroleum Corp. of California plans to lay a crude-oil line from the Cole Creek field, Wyoming, to a terminal at Casper, Wyo.

Phillips Pipe Line Sued by Department of Justice

WILMINGTON, Del.—The U. S. Department of Justice filed two suits in federal court against petroleum pipe-line companies in the Midwest, charging violation of the Interstate Commerce Act by failure to observe published common-carrier rates.

The companion suits, part of the Government's drive

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Pipe-Line Personalities . . . . . C. Lee Wood

Washington Press Photo Bureau
C. LEE WOOD

C. LEE WOOD, general manager of the Houston Pipe Line Co., Houston, Tex., who was on hand to witness the ground broken for his company's first pipe line, has had the satisfaction in his 15 years' service of seeing his company grow to one of the most important pipe-line companies in the Gulf Coast district.

Mr. Wood was born 47 years ago in Helena, Mont. After securing his bachelor of science degree from Princeton University in 1915, he went to work with a Denver livestock and loan company, and later with the Colorado Agency of War Finance Corp., as executive secretary. Here he gained invaluable experience in the handling of financial problems.

At the time the Houston Pipe Line Co. was being organized in 1925, Mr. Wood went to Houston as auditor and assistant treasurer of the company. In 1934 he was appointed acting general manager, and a year later was elevated to his present position. He has charge of the company's pipe-line system, which consists of 600 miles of combination 12¾-in., 16-in. and 18-in. main gas lines extending from Laredo, Tex., to Houston.

Mr. Wood is married and has four children, a daughter and three sons. He is a member of the Houston Club, and finds his chief relaxation fishing from his cruiser, which is stationed near the gulf.

to prevent alleged rebates by pipe-line concerns to certain oil companies named as defendants the Great Lakes Pipe Line Co. and the Phillips Petroleum Co., and Phillips Pipe Line Co.

In both cases the Government contends rebates were allowed stockholder-owners of the oil companies in the forms of dividends of the pipe-line firm. The Government charges that in the past 10 years rebates or "offsets" from published tariff charges allowed by the Great Lakes concern to stockholder-shippers amounted to $34,877,138. Phillips Pipe Line is accused of granting to the Petroleum firm rebates totaling $18,920,000.

Davis to Lay 110-Mile Line Near Brownsville, Texas

Davis & Co. contemplates laying a 110-mile, 10-in. crude-oil pipe line from the Rincon field in Starr County, Texas, to Brownsville, Tex. The new line will have a capacity of 50,000 bbl. per day for shipping oil to a refinery recently built at Brownsville. The company also plans a natural-gas pipe line to serve the new community near the Rincon field.

Southern Gas Will Lay East Texas Extensions

Southern Gas Co. plans to lay extensions to the system operated by the company near Kilgore, Tex. Work will be carried on under the direction of H. C. Chambers, manager.

F.P.C. Holds Hearings on Milwaukee Lines

WASHINGTON, D. C.—The Federal Power Commission has denied motions filed by the National Coal Association and the Truax-Traer Coal Co. for a continuance of the joint public hearing set to begin on October 7 at Madison, Wis., concerning applications of the Western Natural Gas Co. and the Independent Natural Gas Co. for certificates to construct natural-gas pipe lines into Wisconsin. The applicants sought a continuance on the grounds that the Public Service Commission of Wisconsin has not entered its decision on a pending matter relative to jurisdiction of the state body over issues raised by the two gas companies.

The commission, while denying petitions to intervene, has granted to 16 associations, coal dealers and labor unions limited participation in the proceedings to the extent of introducing relevant and material evidence, making oral arguments, if such be ordered, and filing briefs.

The joint hearing will be held at the State Capitol at Madison, and the Public Service Commission of Wisconsin, the state Corporation Commission of Kansas, the state Railway Commission of Nebraska, the Corporation Commission of Oklahoma, the Public Service Commission of Missouri, and any other state commissions interested in the matter will be permitted to participate. The city of Milwaukee, terminus of the two proposed pipe lines, has been granted authority by the commission to intervene in the proceedings.

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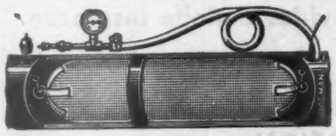

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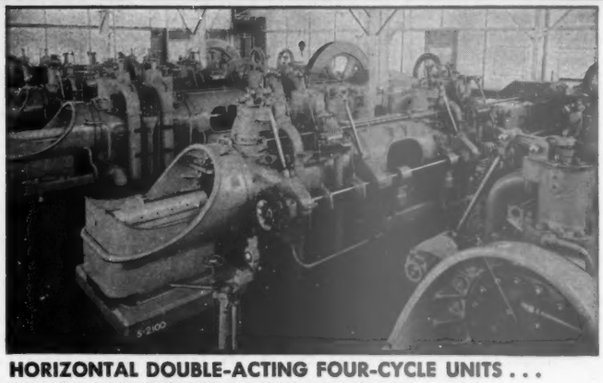

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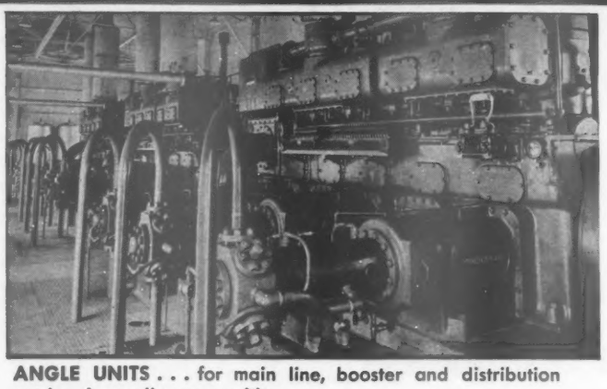

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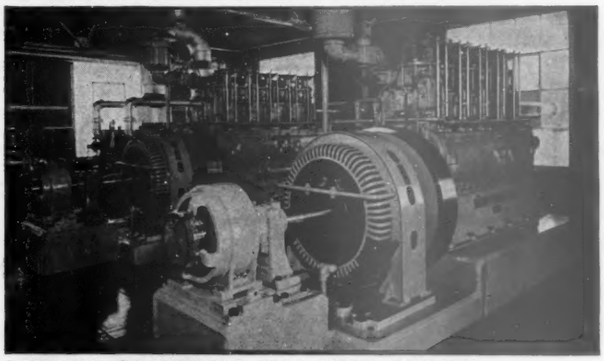

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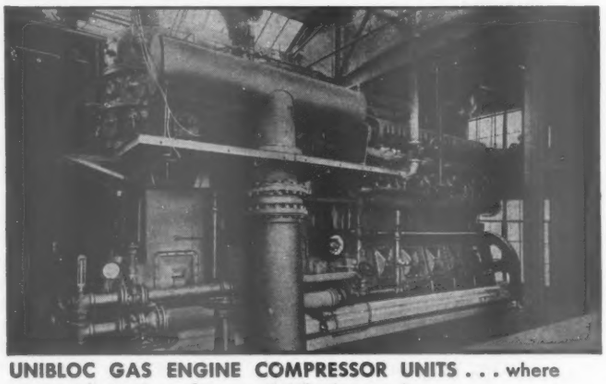

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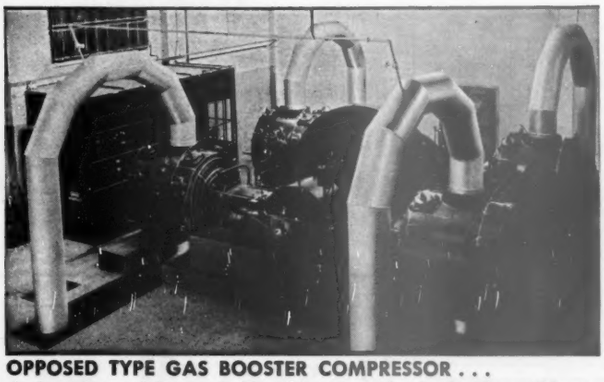

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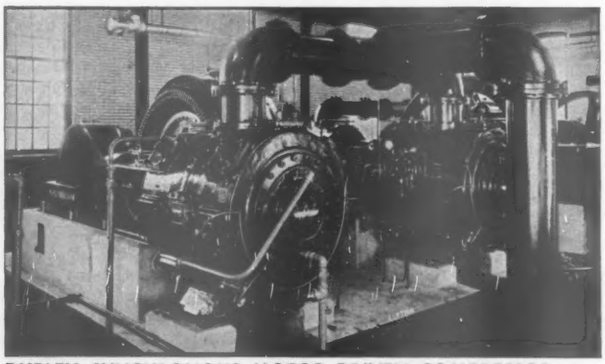

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WORTHINGTON

FIELD DEVELOPMENTS...

HIGHLIGHTS FROM THE WEEK'S NEWS—

KANSAS—A wildcat in western Rice County found oil in Arbuckle lime, giving promise of opening a new producing area. The North Greenvale pool discovery in Russell County was completed in Howard lime. The new Stafford pool was limited by a failure on the east.

OKLAHOMA—The 14-year-old Lovell pool in Logan County was extended southward by a Layton sand well estimated good for 500 bbl. daily, with several new tests being started as a result. The West Stillwater pool, Payne County, was extended southward. A Hughes County wildcat found oil and water in Cromwell sand.

LA-ARK-TEX—Olla remains the most active sector in the tristate area with five completions, including a probable west extension of 1½ miles.

CALIFORNIA—With exports declining, completions increasing and resistance to cutting well allowables developing, the Conservation Committee faces an exciting winter.

SOUTHWEST TEXAS—Agua Dulce gas field is assured of first commercial crude production. New Pettus sand discovery opened in Jim Hogg County and important extensions are marked up in several fields.

WEST TEXAS—A deep test in the Wasson field of Gaines County indicates the discovery of a new deep level for the field at 6,580-6,610 ft. and is drilling ahead for a test of the Ordovician level expected at about 9,000 ft.

WEST CENTRAL TEXAS—A new Palo Pinto lime field has been definitely opened north of the Avoca field in northeastern Jones County. Development has already started with one new outpost location being staked the past week.

NORTH TEXAS—A new and deeper producing level has been opened for the recently discovered Fargo field in extreme northern Wilbarger County. The original discovery being from the Canyon, the new level is in the Strawn and the well is about a mile south of the strike.

SOUTHEAST NEW MEXICO—Eddy County's exploratory program was further advanced during the week when three new wildcat tests were staked throughout the county. Lea County's deep 6,300-ft. wildcat by Venture Oil Co. has been quit as dry.

LOUISIANA GULF COAST—Second producer completed in new deep sand at Iowa field, Calcasieu Parish. New sand and extension opened at the Delta Farms field, La Fourche Parish.

TEXAS GULF COAST—Possible pool opener is ready for test in the Ganado area, Jackson County. Lolita field production extended into Lolita townsite.

COMPLETIONS IN ALL FIELDS . . .

(Week Ended October 5, 1940)

	Oil	Gas	Dry	Total	1940 total comp. to date	1939 total comp. to date
N. Y., Pa., and W. Va.	91	23	3	117	4,757	2,780
Ohio	14	7	7	28	887	603
Indiana	7	2	1	10	347	236
Kentucky	11	0	3	14	369	536
Illinois	67	0	14	81	2,944	2,727
Michigan	8	2	18	28	897	1,113
Kansas	28	0	4	32	1,351	1,001
Oklahoma	21	3	9	33	1,369	1,365
Texas						
North Central Texas	40	2	14	56	2,203	1,826
West Texas	26	0	1	27	1,424	1,391
Texas Panhandle	6	3	0	9	460	324
Eastern Texas	7	0	1	8	462	551
Gulf Coast Texas	13	1	5	19	967	1,039
Southwest Texas	22	1	6	29	1,657	1,886
Total Texas	114	7	27	148	7,173	7,017
North Louisiana	16	1	5	22	472	417
Gulf Coast Louisiana	9	0	8	17	788	526
Total Louisiana	25	1	13	39	1,260	943
Arkansas	2	0	0	2	143	200
Montana	3	1	2	6	172	129
Wyoming	3	0	1	4	126	100
Colorado	0	0	0	0	12	17
New Mexico	13	0	3	16	430	446
California	16	0	3	19	794	701
Miscellaneous	4	0	2	6	170	43
Total United States	427	46	110	583	23,201	19,965
Total previous week	395	58	127	580		
Week ended Oct. 7, 1939	339	38	133	510		

SUMMARY OF OUTSTANDING FIELDS . . .

(Week Ended October 5, 1940)

FIELD—	Active operations	Oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS					
K.M.A.	56	12	9,130	1,465	55,200
Wasson	40	6	4,270	954	28,700
Ector County	51	8	5,785	2,299	43,350
Hull-Silk	69	0	0	360	9,647
East Texas	17	7	454	25,923	298,700
OKLAHOMA					
Cumberland	9	0	0	4	2,000
Oklahoma City	11	0	0	839	109,000
KANSAS					
Bornholdt	13	4	2,042	125	3,130
Silica	10	2	577	696	14,550
Stoltenberg-Wilkens	13	5	2,233	149	3,350
Trapp	10	0	0	579	17,800
LA-ARK-TEX					
Olla, La.	9	5	795	44	4,430
Cotton Valley	5	0	0	158	13,600
MICHIGAN					
Adams	19	1	175	4	1,908
ILLINOIS					
Salem	53	21	3,388	2,918	143,809
Louden	39	6	472	981	72,640
Centralia	10	0	0	716	22,486
Other basin fields	232	40	7,948	2,474	106,986
Old fields	.....	.....	.....	.....	11,846
NEW MEXICO					
Lea County	43	11	3,851	2,569	82,710
Eddy County	50	2	540	618	16,160
MISSISSIPPI					
Tinsley	10	3	990	82	17,760

Wildcatters Find New Small Pools, Maintaining Production

By
STAFF CORRESPONDENT

MATTOON, Ill., Oct. 7.—Illinois' activity continued during the past week when completions numbered 81, of which 67 were oil producers. Louden had seven completions, including one dry hole. The oil wells averaged only 79 bbl. Salem's 21 successful completions averaged 161 bbl., while the 40 oil wells in the rest of the basin averaged just under 200 bbl.

A number of wildcats were completed as producers during the week and others are showing oil. Indications are that all of the discoveries will be of limited extent.

In Gallatin County, about 12 miles northwest of Shawneetown and the same distance from the Junction pool, Carter 1 York, SW SE 33-7s-8e, found 10 ft. of saturation in a shallow sand considered to be the Biehl at 1,331-41 ft.

The Salem and Tonti pools appeared to be linked when Texas 1 Paul Chance made 10 bbl. in 3 hr. from the McClosky at 2,235 ft. In White County, Hays 1 Goad, SW NW 29-3s-9e, swabbed 20 bbl. an hour from the McClosky after a 750-gal. acid treatment at 3,482-3,486 ft. In Wabash County, Hayes Drilling Co. 1 Zimmerman, NW NW SE 36-1n-13w, showed oil in the Benoist. It is to be shot.

Trenton Tests

Martin 1 Robinson, Sandoval's Trenton test, topped the Trenton at 4,270 ft. and reports 25 ft. of pay between 4,270 and 4,311 ft. It is to be tested early this week. Shell's Trenton test, 6-C Ververs in the Fairman field, is shut down at 4,100 ft. Storer 1 Borton, Centralia's Trenton test, is nearing the lime below 4,000 ft., as was the Carlyle field's diamond-drill Trenton test, Hughes 1 Schafly, SE NE SE 3-2n-3w.

Effingham County's two prospects both produced on completion although both are small wells. Troop 1 LeCrone, NW NW SW 7-8n-4e, pumped 42 bbl. of oil and some water from the Cypress and Barr 1 Dammerman, NW NW SW 18-8n-43, got 70 bbl. of oil and 2 per cent water from the same sand. Both wells are on the Fayette County line and are single location extensions of the Louden field.

In spite of the 67 successful completions and 35 reported recompletions in the Salem pool, Illinois production declined again. This week the decline was 2,500 bbl. to 357,767 bbl. Salem's new production failed to maintain production, and the field dropped 6,295 bbl. to 143,809 bbl. Production from other basin fields rose 6,028 bbl. to 106,986 bbl.

ILLINOIS COMPLETIONS

Bond County

Magnolia 6 J. Elam . . . . . SW SE SW 3-6n-2w
Pumped 10 bbl. oil and 7 bbl. water, Benoist 1,009-15 ft., P.B. to 1,014 ft.
Magnolia 4 W. H. Grigg . . . . . NE SE NE 9-6n-2w
Pumped 33 bbl. oil and 7 bbl. water, 10-qt. shot, Benoist 1,009-14 ft.
Spindler Inv. 3 fee . . . . . NW SE NW 10-6n-2w
Pumped 36 bbl. oil and 7 bbl. water, 40-qt. shot, Benoist 1,010-16 ft.

Bureau County

F. E. Webb 1 Abrams . . . . . NW NE NE 24-18n-8e
Dry, slight show oil 466-69 ft., T.D. 501 ft.

Clinton County

Shell 3 B. Allison . . . . . SE NE NE 12-1n-1w
Pumped 24 bbl. oil and 39 bbl. water, 8-qt. shot, Benoist 1,371 ft., T.D. 1,382 ft., P.B. to 1,381 ft.
M. Jacobsen 2 Knolhoff . . . . . NW SE NW 11-1n-2w
Pumped 35 bbl. oil, 3-qt. shot, Benoist 1,323-27 ft.
Sistler & Strawser 1 Phoenix . . . NW NW SW 14-1n-1w
Pumped 25 bbl. oil and 25 bbl. water, 3-qt. shot, Benoist 1,308-21 ft.

Effingham County

R. H. Troop 1 B. V. LeCrone . . . . NW NW SW 7-8n-4e
Pumped 42 bbl. oil and some water, 21 hr., 10-qt. shot, Cypress 1,540-55 ft., T.D. 1,558 ft.
E. Barr 1 Dammerman . . . . . NW NW SW 18-8n-4e
Pumped 70 bbl. oil and 2 per cent water, 7-qt. shot, Cypress 1,554-68 ft.

Edgar County

G. J. McDevitt 1 Wilhoit . . . . . SW SE SW 18-12n-13w
Dry, Mississippi lime 550 ft., T.D. 600 ft.

Edwards County

Kingwood 1 Shurtleff . . . . . E½ NE NW 4-1s-14w
Dry, Menard 2,180 ft., Tar Springs 2,314 ft., Benoist 2,886 ft., Aux Vases 2,934 ft., Ste. Genevieve 2,977 ft., St. Louis 3,092 ft., T.D. 3,128 ft.
Superior 7 Wood . . . . . SW NW NW 19-2s-11e
Pumped 190 bbl. oil in 14 hr., 5,000 gal. acid, McClosky 3,123-28 ft., T.D. 3,136 ft.
Tuesday 1 G. J. Works . . . . . SE NE SE 13-2s-10e
Flowed 1,200 ft. oil (est.), 4,000 gal. acid, McClosky 3,081-92 ft., T.D. 3,150 ft., P.B. to 3,103 ft.

Fayette County

T. A. Chambers 1 J. Larimore . . . . NW SE NE 21-7n-3e
Dry, Glen Dean 1,591 ft., Cypress 1,534 ft., Cypress sand 1,553 ft., T.D. 1,566 ft.

Fayette County—Louden Field

Carter 6 May Taylor . . . . . NE NW SE 12-8n-3e
Pumped 96 bbl. oil, 10-qt. shot, Cypress 1,521-36 ft.
Carter 4 Clara McCan . . . . . SW NE SE 31-8n-3e
Pumped 240 bbl. oil, 20 and 20-qt. shots, Cypress 1,452-99 ft., Paint Creek stray 1,337-46 ft., Bethel 1,559-79 ft.
Steward Oil 6 McCoy . . . . . NW NE NE 34-8n-3e
Pumped 30 bbl. oil and 3 bbl. water, 50-qt. shot, Cypress 1,507 ft., Paint Creek stray 1,581-95 ft., T.D. 1,604 ft., P.B. to 1,600 ft.
L. B. Hoss 9 Sealock . . . . . NW NE NW 19-7n-3e
Pumped 20 bbl. oil, 40-qt. shot, Cypress 1,546-55 ft., T.D. 1,570 ft.
Forest 2 Barnes . . . . . NW SW SW 31-7n-3e
Pumped 30 bbl. oil and show water, 10-qt. shot, Cypress 1,592-98 ft.
Texas 11 O. Neathery . . . . . NE NW NW 6-6n-3e
Pumped 56 bbl. oil in 19 hr., 12-qt. shot, Cypress 1,539-46 ft.
Texas 2 E. Stine . . . . . SE NE NW 7-6n-3e
Dry, Cypress 1,592-97 ft.

Fayette County—St. James Field

Texas 13 C. Wright . . . . . SE SE NE 31-6n-3e
Pumped 120 bbl. oil, Cypress 1,602-12 ft.
Texas 15 C. Wright . . . . . SE NE NW 31-6n-3e
Pumped 48 bbl. oil and 10 bbl. water, Cypress 1,627-38 ft.

Franklin County

Manley 1 Downen . . . . . SW SW SW 26-7s-4e
Flowed 800 bbl. oil, 1,000 gal. acid, McClosky 3,096-3,116 ft.

Gallatin County

Colebeck 1 Egyptian Tie & Timber . . . . . SW NW NE 19-8s-10e
Flowed 200 bbl. oil, 1,000 gal. acid, no increase, C.P. 290 lb., T.P. 30 lb., McClosky 2,736-42 ft.

Hamilton County

Kingwood 3 Morris . . . . . NE SW NE 34-5s-6e
Pumped 253 bbl. oil and 4 bbl. water, 20-qt. shot, Benoist 2,982-97 ft.

Jasper County

Pure 10 J. W. Trainor . . . . . W½ SW SE 6-4n-10e
Flowed 336 bbl. oil, McClosky 2,785-2,800 ft., T.D. 2,815 ft.

Lawrence County

Robinson 1 Rogers . . . . . NW NW NE 33-3n-12w
Dry, elev. 463 ft., Glen Dean 1,623 ft., Cypress 1,790 ft., Benoist 1,920 ft., Ste. Genevieve 1,980 ft., McClosky 2,080-87 ft., T.D. 2,118 ft.

Macoupin County

W. A. Steward 1 Carlinville Nat. Bank . . . . . NE NE NE 35-9n-8w
Dry, Devonian 1,300 ft., T.D. 1,340 ft.

Madison County

E. J. Boescke 1 Riegel . . . . . NE SE NW 17-3n-5w
Dry, Galena 2,736 ft., Decorah 2,780 ft., Platteville 2,791 ft., T.D. 2,877 ft.

Marion County—Salem Field

Texas 16 W. Martin . . . . . NW SE SE 17-2n-2e
Pumped 96 bbl. oil, 4,500 gal. acid, McClosky 2,028-40 ft., 2,054-62 ft., Salem 2,278-85 ft., T.D. 2,289 ft.
Texas 8 W. Ray . . . . . SE SW SE 21-2n-2e
Pumped 82 bbl. oil, 5-qt. shot, Benoist 1,849-66 ft.
Texas 28 E. Tate . . . . . SW SE SW 31-2n-2e
Pumped 160 bbl. oil, 3,000 gal. acid, McClosky 2,025-30 ft., 2,060-65 ft., 2,075-80 ft., T.D. 2,085 ft.
Texas 29 E. Tate . . . . . SE SE SW 31-2n-2e
Pumped 180 bbl. oil, 3,000 gal. acid, Salem 2,225-30 ft., T.D. 2,245 ft.
Texas 76 City of Centralia . . . . . NW NW NW 4-1n-2e
Pumped 187 bbl. oil, 4,000 gal. acid, McClosky 2,012-27 ft., 2,035-43 ft., Salem 2,210-25 ft., 2,250-54 ft., T.D. 2,260 ft.
Texas 82 City of Centralia . . . . . SW SW NW 4-1n-2e
Pumped 126 bbl. oil, 3,000 gal. acid, McClosky 2,018-42 ft., T.D. 2,090 ft.
Texas 15 C. E. Richardson . . . . . NW NW SW 4-1n-2e
Pumped 127 bbl. oil, McClosky 2,031-43 ft., 2,052-68 ft., T.D. 2,091 ft.
Texas 68 City of Centralia . . . . . SW SE NE 5-1n-2e
Flowed 275 bbl. oil, 5,000 gal. acid, Devonian 3,430 ft., 3,445-55 ft., 3,480-85 ft., T.D. 3,494 ft.
Texas 70 City of Centralia . . . . . NW SW NE 5-1n-2e
Pumped 168 bbl. oil, 3,000 gal. acid, McClosky 1,893-1,900 ft., 1,925-35 ft., Salem 2,130 ft., T.D. 2,165 ft.
Texas 79 City of Centralia . . . . . SE SW NE 5-1n-2e
Gas input, Benoist 1,742 ft., Aux Vases 1,804 ft., T.D. 1,870 ft.
Texas 81 City of Centralia . . . . . SE SE NE 5-1n-2e
Pumped 154 bbl. oil, 5,000 gal. acid, McClosky 2,057-63 ft., 2,098-2,100 ft., Salem 2,217-29 ft., T.D. 2,235 ft.
Texas 33 L. Hawthorne . . . . . NW NE SE 5-1n-2e
Flowed 230 bbl. oil, 5,000 gal. acid, Devonian 3,430 ft., 3,445-60 ft., 3,480-83 ft., T.D. 3,497 ft.
Texas 38 L. Hawthorne . . . . . NW NE SE 5-1n-2e
Pumped 175 bbl. oil, McClosky 1,983-2,010 ft., 2,025-29 ft., 2,037-45 ft., Salem 2,202-11 ft., T.D. 2,235 ft.
Texas 14 C. E. Richardson . . . . . NE NE SE 5-1n-2e
Pumped 175 bbl. oil, McClosky 2,012-30 ft., 2,090-97 ft., Salem 2,223-40 ft., T.D. 2,250 ft.
Texas 18 H. Small . . . . . NW NE NE 5-1n-2e
Pumped 138 bbl. oil, 4,000 gal. acid, McClosky 1,940-44 ft., Salem 2,205 ft., T.D. 2,250 ft.
Texas 15 C. Bundy . . . . . SE SW NE 6-1n-2e
Pumped 105 bbl. oil, McClosky 1,915-30 ft., 1,955-68 ft., Salem 2,166-72 ft., T.D. 2,210 ft.
Texas 17 C. Bundy . . . . . NW NW NE 6-1n-2e
Pumped 610 bbl. oil, 3,000 gal. acid, McClosky 1,963-72 ft., Salem 2,234 ft.
Texas 22 J. Canull . . . . . NE NE NE 6-1n-2e
Pumped 42 bbl. oil, 3,000 gal. acid, McClosky 1,865-75 ft., 1,900-18 ft., 1,930-31 ft., T.D. 1,941 ft.
Texas 29 G. S. Johnson . . . . . SW SW SE 6-1n-2e
Gas input, Benoist 1,746-88 ft., Aux Vases 1,800-69 ft.
Texas 18 R. Fyke . . . . . NE SE SW 8-1n-2e
Pumped 22 bbl. oil, 45-qt. shot, Benoist 1,850 ft., Aux Vases 1,911 ft., T.D. 1,913 ft.
Texas 11 W. D. Fyke . . . . . NW NE SE 8-1n-2e
Pumped 70 bbl. oil, 15-qt. shot, Benoist 1,859-90 ft.
Texas 36 L. Hawthorne . . . . . N½ SW NE 8-1n-2e
Pumped 98 bbl. oil, 5,000 gal. acid, McClosky 2,022-55 ft., Salem 2,236 ft., T.D. 2,263 ft.
Texas 39 L. Hawthorne . . . . . SE SW NE 8-1n-2e
Pumped 168 bbl. oil, Benoist 1,862-1,904 ft.

Richland County

Pure 2 Kropp Consol. . . . . W½ SW SE 8-5n-10e
Pumped 88 bbl. oil and 32 bbl. water, 1,000 gal. acid, McClosky 2,885-95 ft., T.D. 2,904 ft.
Pure 1 F. M. Storer . . . . . E½ SE NW 7-4n-10e
Flowed 269 bbl. oil, McClosky 2,908-32 ft., T.D. 2,940 ft.

St. Clair County

Tarleton 3 Tarleton . . . . . NE SE SE 28-1n-10w
Pumped 102 bbl. oil and 48 bbl. water, Trenton 464-90 ft.

Wabash County

U. S. Oil 1 Stillwell . . . . . SW NW SE 7-1n-11w
Dry, T.D. 1,569 ft.
W. W. Gray 1-A fee . . . . . SE SW SE 14-3n-14w
Flowed 400 bbl. oil, Tar Springs 2,089-95 ft., 2,118-21 ft., Cypress sand 2,480 ft., T.D. 2,504 ft.

Washington County

Magnolia 5 P. Kosuszek . . . . . SE SE NW 26-3s-3w
Pumped 24 bbl. oil and 12 bbl. water, Benoist 1,251-80 ft.

Wayne County

Pure 1 Reed Consol. . . . . E½ SW SW 36-2n-7e
Flowed 504 bbl. oil, 1,000 gal. acid, McClosky 3,034-37 ft., 3,058-63 ft., T.D. 3,085 ft.
Pure 1 Padgett Consol. . . . . E½ SW SE 29-2n-8e
Pumped 204 bbl. oil, 5,000 gal. acid, McClosky 3,025-27 ft.
Pure 1 J. S. Hubble-B . . . . . E½ SE SW 32-2n-8e
Flowed 824 bbl. oil, 5,000 gal. acid, McClosky 3,029-35 ft., 3,040-46 ft., T.D. 3,105 ft.
Duncan Bros. 1 W. Barnes . . . . . W½ NE NE 20-2n-8e
Dry, Ste. Genevieve 2,966 ft., T.D. 3,090 ft.
Pure 1 W. L. Robertson . . . . . W½ NW NW 1-1n-7e
Pumped 68 bbl. oil, McClosky 3,025-27 ft., 3,053-60 ft., T.D. 3,069 ft.
Humphreys 1 Brach . . . . . SW SE NW 4-2s-7e
Pumped 157 bbl. oil, McClosky 3,256-84 ft., T.D. 3,293 ft.
Weinert 1 Sprague . . . . . SW NW SE 4-2s-7e
Pumped 85 bbl. oil, 3,000 gal. acid, McClosky 3,234-38 ft., T.D. 3,300 ft.
Southern Pet. 1 A. Carter . . . . . NE NW SW 16-3s-9e
Dry, Menard 2,495 ft., Glen Dean 2,763 ft., Golconda 2,857 ft., Ste. Genevieve 3,338 ft., T.D. 3,416 ft.

White County

Magnolia 3 C. Pollard . . . . . NE SE SE 28-3s-9e
Pumped 28 bbl. oil and 102 bbl. water, McClosky 3,412-17 ft.
Arrow Drlg. 1 Hon . . . . . SE NE NE 5-4s-14w
Flowed 360 bbl. oil through 23/64-in. tubing, 2,000 gal. acid, McClosky 2,863-71 ft.
Cherry & Hill 4 W. W. Gray . . . . . NW SE SE 8-4s-14w
Pumped 52 bbl. oil, 20-qt. shot, Benoist 2,682-95 ft., T.D. 2,705 ft.
Buell & Herndon 3 T. Bond . . . . . SE NE NE 8-4s-14w
Pumped 85 bbl. oil, 20-qt. shot, Benoist 2,676-92 ft., T.D. 2,700 ft.
W. Fortner et al 4 Calvin . . . . . NE NE SW 9-4s-14w
Pumped 16 bbl. oil and 30 bbl. water, 10-qt. shot, Tar Springs 2,206-17 ft., 2,231-36 ft.
W. Fortner et al 3 Calvin . . . . . SE NE SW 9-4s-14w
Pumped 10 bbl. oil and 1 bbl. water, Tar Springs 2,214-28 ft., T.D. 2,231 ft.
Pure 5 Potter . . . . . NW SW NW 9-4s-14w
Pumped 33 bbl. oil, Benoist 2,680-94 ft., T.D. 2,700 ft.
Cherry & Kidd 1 W. W. Gray-B . . . . . NE NE NE 17-4s-14w
Pumped 85 bbl. oil, 20-qt. shot, Benoist 2,691-2,705 ft., T.D. 2,717 ft.
Sun 15 Greathouse . . . . . SE NW SE 33-4s-14w
Pumped and flowed 450 bbl. oil, 80-qt. shot, Cypress 2,569-2,607 ft.
Neff 1 Garner . . . . . SW SW SW 36-4s-10e
Pumped 160 bbl. oil, 20-qt. shot, Rosiclare 2,959-69 ft., T.D. 2,972 ft.
Florida 1 Boultinghouse . . . . . NW NE SE 9-4s-14w
Dry, Benoist 2,717-24 ft.
Exchange 5 Pearce . . . . . NE NE SE 11-6s-9e
Flowed 407 bbl. oil, 15-qt. shot, Waltersburg 2,256-78 ft.
Frontier 1 W. O. Wilson . . . . . SE NW SE 11-6s-9e
Pumped 65 bbl. oil, 20-qt. shot, Waltersburg 2,255-65 ft.
Eason 6 Storms . . . . . SE SW SE 15-6s-9e
Pumped 50 bbl. oil, 10-qt. shot, Waltersburg 2,240-50 ft.
Bay 1 Urban Homes . . . . . NW NW NW 30-6s-9e
Dry, Menard 2,217 ft., Glen Dean 2,484 ft., Ste. Genevieve 3,028 ft., T.D. 3,170 ft.

(Continued on Page 130)

New Drilling Spurt at Lovell Follows Layton Sand Strike

By
DAL DALRYMPLE

THE old Lovell area in Logan County, Oklahoma, has become active again as a result of a strike at Danciger Oil & Refineries, Inc., 1 Richards, C NE NW 3-17-4w. It was estimated good for 500 bbl. of oil daily through pipe perforations in the Layton zone at 4,870-90 ft. Location is on the southeast flank of the pool, which was opened in May 1926 in 28-18-4w. As there appears to be a fault defining the west side of the field, geologists believe the new play will be confined to the south, east, and north flanks. New tests are being started at Danciger 1 Shore, C SW SE 34-18-4w; Big Chief and Kenneth Ellison 1 Stranger, C SW SE 27-18-4w; H-P Gas Co. 1 Speaks, C NE NE 4-17-4w; and F. S. & Elmer Wood 1 Knecht, SE SE SE 21-18-4w. Some fast leasing was under way, although there is little unleased acreage, and other operators were expected to announce locations soon.

Ramsey Petroleum Co. 1 Vierson, SW SE SE 5-5-10, wildcat northeast of a gas pool in the Calvin-Beeker area, Hughes County, pumped 160 bbl. of oil and 900 bbl. of water in 20 hours. It had Cromwell sand at 4,465-4,529 ft.

The West Stillwater pool, Payne County, was extended one location southward at J. E. Crosbie, Inc., et al 1 Murphy, NE NE SW 20-19-2e, second producer in the area. It had Wilcox sand at 4,696-4,713 ft., total depth, perforated casing in Hunton lime at 4,488-4,525 ft. and flowed 512 bbl. of oil in 22½ hours. The discovery well, W. H. Elson et al 1 Murphy, north of the Crosbie well, was completed recently for 468 bbl. of oil daily in Hunton lime after finding water in Wilcox sand.

FIELD COMPLETIONS

Coal County

Ashland area: Campbell 1 Cunningham, CNL NW 25-3n-11. Missed sand, T.D. 1,565 ft., dry.

Creek County

Bristow area: Springer 1 Fobes, SE NW SW 20-15-9. Wilcox 3,642 ft., T.D. 3,655 ft., shot with 40 qt. 3,640-55 ft., pumped 75 bbl. oil and 6 bbl. water.
East Tuskegee field: Vincent 2 Walker, SW SE NE 34-14-10. Wilcox 3,306-17 ft., dry.
Kellyville district: Wright 29 Meyer, CSL SW NW 24-17-10. Red Fork sand 1,840-73 ft., T.D., P.B. 1,863 ft., shot with 70 qt. 1,840-63 ft., pumped 15 bbl. Swift 3 Musellem, SE SW NE 18-18-10. Bartlesville 2,447-2,573 ft., dry.
Olive pool: Greer 2 Morgan, NW SW SW 9-17-8. Red Fork 2,720-26 ft., T.D. 2,790 ft., dry.

Grady County

Knox field: T. H. McCasland 2-B Horton, SW SE SE 8-3-5w. Sand 2,574-2,603 ft., T.D. 2,608 ft., 8⅝-in. casing 2,470 ft., pumped 22½ bbl. oil.

Kiowa County

Hobart area: Sinclair Prairie 1 Watkins, SE NE NW 19-7-17w. Lime 1,459-75 ft., T.D. 1,501 ft., temporarily abandoned.

Lincoln County

Laffoon area: Superior 1 Wagner, SW SW SE 10-13-6. Hunton 4,112-59 ft., T.D., 7-in. 4,118 ft., acidized 2,500 gal., estimated 25,000,000 cu. ft. gas, 1,275 lb. rock pressure.
Prague pool: Mid-States 2 Provznik, SE SW SW 33-12-6. Skinner 3,266-70 ft., T.D. 3,297 ft., shot 60 qt. 3,275-97 ft., swabbed 300 bbl. oil and 20 bbl. water.

Noble County

Billings pool: Phillips et al 71 Billings unit, SW SW SW 22-23-2w. Wilcox 4,322-49 ft., T.D., 7-in. 4,335 ft., flowed 523 bbl. of oil in 6 hr. through tubing, potential 1,904 bbl., with 1,200,000 cu. ft. gas.

Okfuskee County

Dill pool: John Droppleman 2-A Dill, NE SE SE 34-12-8. Cromwell 3,529 ft., T.D. 3,565 ft., 7-in. 3,528 ft., flowed 1,320 bbl. of oil.
I.T.I.O. 1 Miller, SW NW SW 35-12-8. Cromwell 3,519-56 ft., T.D., flowed 2,200 bbl.
East Cromwell pool: Foundation Oil 1 Berryman, NE NE NE 35-11-8, outpost about midway between the East and North Cromwell pools. Gilcrease 3,192 ft., T.D. 3,420 ft., P.B. 3,418 ft., swabbed 75 bbl., pumped 50 bbl., gravity 37.4°.
Shell 1 Replogle, NE SE SE 35-11-8. T.D. 3,490 ft., flowed 272 bbl.
Weleetka area: Doak et al 1 Lowe, SE SE NE 16-10-11. Sand 1,888-1,902 ft. and 1,910-15 ft., Cromwell 2,172-80 ft., T.D., P.B. 2,000 ft., pumped 100 bbl.
Miscellaneous: Burke-Greis 1 Scott, C NE SW 20-10-10, old well deepened from 2,745 ft. to sand 2,790 ft., T.D. 2,802 ft., gaged 12,000,000 cu. ft. gas, with 800 lb. rock pressure.

Okmulgee County

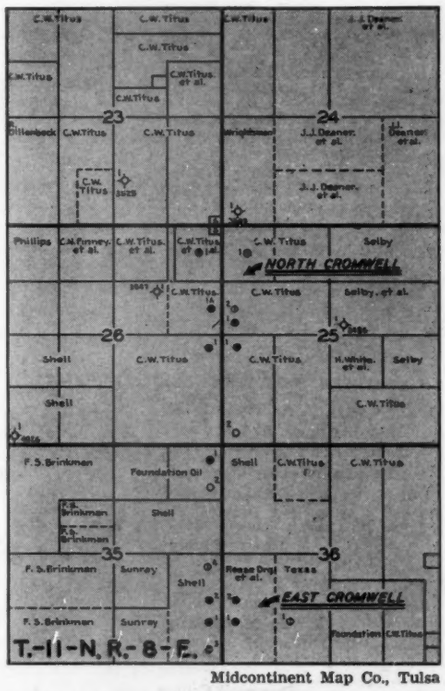
Hector area: B. H. Young 2 Anderson, C NE SE 6-15-14. T.D. 1,312 ft., gaged 5,000,000 cu. ft. gas.
Morris field: Royal O. & G. 6 Hill, SW NE SE 27-13-14. T.D. 1,610 ft., pumped 5 bbl.
North Beggs area: Sheridan Oil 2 Hayden, NE NW SW 4-15-12. T.D. 504 ft., dry.

Osage County

Flat Rock pool: B. A. Wofford 4 Osage, S½ NE SE SE 8-20-12. T.D. 1,412 ft., pumped 20 bbl.
Pawhuska area: A. M. Landon 12 Osage, NE NW SE SE 17-25-9. T.D. 1,995 ft., pumped 50 bbl.
Osage-Hominy pool: Texas 2 Osage, S½ S½ SE 1-23-7. T.D. 2,110 ft., pumped 73 bbl.
South Hominy area: E. O. Platter 2 Osage, E½ SE NE 29-22-9. T.D. 1,784 ft., pumped 50 bbl.
Wildhorse pool: Peters Petroleum 5 Osage, NW NW NW 14-22-10. T.D. 1,827 ft., flowed 1,440 bbl.

Pottawatomie County

Prague pool: H. L. Berkey 2 Wilson, NE NW NW 4-11-6. Prue 3,055 ft., sand 3,268 ft., 7-in. 3,270 ft., shot 40 qt. 3,280-96 ft., T.D., pumped 353 bbl.
St. Louis field: Marko 1 Baker, C NW SE 15-7-3e. Hunton 4,409 ft., 7-in. 4,397 ft., T.D. 4,451 ft., shot 45 qt. 4,410-36 ft., acidized 5,000 gal., swabbed 288 bbl., pumped 78 bbl., cutting 4 per cent.
Amerada 1 Harrison, NW NW SW 33-7-4. Old well deepened from 4,290 ft. to Wilcox 4,305 ft., T.D. 4,315 ft., pumped 183 bbl. oil and 171 bbl. water in 17 hr.



Midcontinent Map Co., Tulsa

Joining of the East and North Cromwell areas in southwestern Okfuskee County is forecast by completion of Foundation Oil Co. 1 Berryman, NE cor. 35-11-8, about midway between the two areas

Seminole County

West Konawa pool: Davis 2 Slaughter, SE NW SW 34-6-5. Senora sand zone 2,201 ft., T.D. 3,212 ft., 7-in. 2,498 ft., P.B. 2,235 ft., shot 30 qt. 2,220-28 ft., pumped 81 bbl. oil and 12 bbl. water.

Stephens County

Comanche area: George Pace 5 Enloe, NE SE SW 21-2s-7w. Sand 1,520-21 ft., T.D. 1,746 ft., dry.

Texas County

Hugoton field: Peerless O. & G. 1 Hoffberger, C SW NE 4-3n-17ecm. T.D. 2,738 ft., gaged 12,280,000 cu. ft. gas.
World Petroleum 1 Deardorff, SE NW NE 2-4n-19ecm, about 2 miles from Beaver County line. T.D. 3,435 ft., dry.

Wagoner County

Bilby pool: K. L. G. Oil 6 Robson, W½ NW SW NE 21-19-15. T.D. 1,015 ft., pumped 10 bbl.
George area: Geneva & Joseph 3 Porter, NE NE NW 23-17-15. T.D. 1,027 ft., pumped 25 bbl.
Miscellaneous: Breshear 1-A Koch, NW NE SW 16-17-17. T.D. 1,026 ft., dry.
C. F. Finefield 1 Hensley, SE SW SW 33-18-18. T.D. 556 ft., dry.

FIRST REPORTS

Creek County

Tibbens 5 Harry . . . . . SE NW NW 9-14-10.
Vierson 3 Judeman . . . . . NE SE NW 24-14-10.
Strozier 1 Anicker . . . . . SE NE NW 18-17-10.
Jackson 3 Martin . . . . . SW SE NE 18-18-10.

Le Flore County

LeFlore G. & E. 37 Lester . . . . . C NW 5-6-23.

Lincoln County

Mid-States 1 Provznik . . . . . SW SE SW 33-12-6.
Superior 2 Wagner . . . . . SW NW SE 10-13-6.

Okfuskee County

Doak et al 1 Community . . . . . SW SW NW 15-10-11.
Fleming 2-A McKinney . . . . . SW NW SE 18-10-11.
Lee 1 Ramsey, wildcat . . . . . SE NE NW 35-12-8.

Pawnee County

Valley-Osage 1-A Blackburn . . . . . SW NW NE 22-20-9.

Payne County

Mulburry 9 Browles, old well drilled deeper . . . . . NE NW NW 26-18-4.
Deep Rock 6 Laughlin, old well P.B. . . SW SW NE 2-18-5.

Pittsburg County

Campbell 1 Cunningham . . . . . C NW NW 20-3-12.

Pontotoc County

Eason 1 Norvell . . . . . NW NE NE 34-5-4.

Seminole County

Amerada 1 Campbell, wildcat . . . . . N½ SW SW 30-9-6.
Suppes 1-A Pinehill . . . . . SW SW SE 28-11-8.
Davis 1 Jones . . . . . NW SE SW 34-6-5.
Stanolind 1-B Grisso . . . . . NW NE SW 15-9-6.

WILDCAT REPORTS

Caddo County

Texas 1 Smith . . . . . C NE NW 2-5-12w
Drilling 3,429 ft.

Creek County

Shell 1 Lynihan . . . . . NE SE NE 31-15-7
Viola 4,014 ft., Dense 4,036 ft., first Wilcox 4,055-56 ft., second Wilcox 4,079 ft., set 4½-in. casing 4,040 ft.

Garvin County

Stanley A. Thompson 1 Alliance . . . . . SW SE SW 22-4-2
Base Penn. and brown dense 3,140 ft., sandy dolomite 3,190 ft., Wilcox 3,282 ft., T.D. 3,424 ft., S.D.

Hughes County

Don Feagin 1 Fulks . . . . . NE NW SW 8-9-11
Viola 1,568 ft., Bartlesville 1,590 ft., drilling 1,610 ft.

Kay County

Amer & Wilson 1 Deimar . . . . . NE NW SW 28-27-1w
Drilling 2,980 ft.
I. T. I. O. 1 Goodson . . . . . SW SW NE 13-28-3
Drilling 2,737 ft.
Zephyr Drlg. 1 State . . . . . NE NW SW 13-26-2w
T.D. 3,928 ft. in Wilcox, P.B. 3,610 ft., drilled plug and hole filled with water, S.D. orders.

Kiowa County

Southwestern Okla. O. & G. 2 Folts . . NW SE SE 10-6-18w
T.D. 2,000 ft. in lime, contract depth, S.D.

Lincoln County

Kemp et al 1-A Tanner . . . . . SE cor. 28-17-5
Set 7-in. casing 3,595 ft., T.D. 3,952 ft., P.B. 3,925 ft. to test show in Viola.
Mason & Stuart 1 Crane . . . . . SW NE SE 7-12-5
Hogshooter 2,702 ft., drilling 3,170 ft.

Love County

Colvin & Hicks 2 Westheimer . . CW½ SE SW 27-6s-2
Sycamore 1,485 ft., drilling 2,102 ft.

Noble County

Franks & Ellis 1 Strasky . . . . . SW SW NW 35-24-1w
Drilling 2,340 ft.

Okfuskee County

Vierson & Phillips 1 Leonard . . . . SW SE NW 11-13-7
Oswego 2,597 ft., show oil, Prue 2,615-45 ft., Inola 3,181 ft., Booch 3,450 ft., dry, Dutcher 3,548 ft., show oil, T.D. 3,594 ft., testing Prue.
W. B. Pine 1 Armstrong . . . . . SE SE NE 3-11-10
Perf. 3,121-38 ft., drilling deeper with 1,200 ft. oil in hole.

Osage County

Millard & Vance 1 Osage . . . . . SE cor. 5-25-10
Drilling 1,153 ft.
Peters & Norbia 15 Osage . . . . . SE NW SW 16-22-9
T.D. 2,655 ft., pumped 6 bbl. in 24 hr., to drill deeper.

Seminole County

Mid-Continent 1 Porter . . . . . NW SW NW 12-7-7
Drilling 4,303 ft.

(Continued on Page 110)

Wasson Gets 9,000-Foot Test. Pecos Deep Test Runs High

By
R. MARNE SANFORD

FORT WORTH, Tex., Oct. 7.—Although now being carried deeper as an Ordovician test to 9,000 ft., a deep exploratory hole in the Gaines County portion of the Wasson field definitely established a 6,600-ft. producing horizon. The well, located in the approximate center of the one-time Wasson field of Gaines County and now part of one of the largest single fields in West Texas, is Amon G. Carter 4-D Wasson, NW SE Section 50, Block A.X., P.S.L. Survey.

During the past week the test was acidized with 6,500 gal. of acid between 6,580 and 6,610 ft. and responded with a flow of approximately 50 bbl. of oil daily. The new zone is about 1,500 ft. below the regular Permian lime pay of the large Wasson field and is believed to be the corresponding section with the Tubb pay zone in the Sand Hills field of Crane County, it being basal Permian. This portion of the Wasson field is abnormally high and the 4-D Wasson was one of the highest tests yet drilled. With an elevation of 3,564 ft., it topped the brown lime at about 3,860 ft. and the San Andreas lime at 4,280 ft.

Should the deep level prove more attractive than did the deep Holt horizon opened last year in Ector County, many tests would be deepened to the lower pay. If a deep level of any consequence should be opened one drawback would confront many operators in the Wasson field. For several months the practice has been to drill smaller size hole and complete through 4-in. casing or 5½-in. casing instead of the usual 7-in. These small holes could not be deepened.

With only primary attempts made to complete 4-D Wasson from the apparent new level, it is now being carried to 9,000 ft. as an Ordovician test and was last reported below 6,700 ft. and being drilled as a tight operation.

Wildcats Started

The northern part of the West Texas portion of the Permian basin, which received three new wildcat or outpost locations the previous week, is holding some attention as all three are starting activity. North of the Waples-Platter area in Yoakum County Forest Development 1 Whisenant, Section 553, reported a top on the anhydrite which checks favorably with the two wells to the south. The marker was picked at 2,560 ft. which places it about flat with the producers. It is going ahead below 3,420 ft.

About 9 miles east of the Slaughter field in Hockley County Cascade Petroleum 1 Walker, Section 22, League 22, McCulloch County School Lands Survey, has set surface pipe at 180 ft., 10 ft. off bottom in red rock.

Three miles west of the Duggan area in Cochran County Ray R. Rhodes and Atlantic 1 Dean has been corrected in location to 672 ft. from the north and 8,423 ft. from the east lines of League 89, Lipscomb County School Lands. Materials are being rigged up for immediate spudding.

SOUTHERN WEST TEXAS

In the Imperial area of northern Pecos County, long a wildcat area with deep Ordovician production the objective, is again in the spotlight as a new deep wildcat is checking favorably on markers. It is Taubert-Siemoneit Drilling Co. 1 Virginia W. Crockett, Section 41¼, Block 3, H.&T.C. Survey, about 1¼ miles south of the old Magnolia and Tex-Mex 1-A McKee, failure of more than a year ago which headed some oil from the Simpson formation. No. 1 Crockett topped the Simpson 27 ft. higher than 1 McKee and is drilling ahead below 4,817 ft.

In northern Ward County and as an outpost to the one-well field opened recently by the final gaging of the long-testing Atlantic 1 Wickett-University, Magnolia Petroleum Co. is moving in materials and digging pits for 1-41 George Sealy. The new location is 990 ft. from the south and 2,310 ft. from the west lines of Section 41, Block F, G.&M.M.B.&A. Survey, about ¾ mile south of the discovery well. The one-well area has been named the South Magnolia-Sealy field.

Continuing its development 1½ miles south of the McElroy field, Texas Pacific Coal & Oil Co. has spudded its second test for the area. The location is a south offset to 1 Eddleman which about 3 weeks ago extended production in the field 1½ miles to the south. No. 2 Eddleman is in SE Section 208, Block F.

NORTHERN WEST TEXAS COMPLETIONS

Andrews County

Means field: Humble 28 Means, 1,078 bbl., 2-in. tubing, 4,495-4,545 ft.

Gaines County

Seminole field: Amerada 2 Blackmore, 794 bbl., natural, ½-in. choke, 5,130-5,350 ft.
Magnolia 11-219 H.&J., 789 bbl., natural, ½-in. choke, 5,153-5,261 ft.
Magnolia 3-251 H.&J., 682 bbl., natural, ½-in. choke, 5,120-5,311 ft.
Wasson field: Osage Drilling Co. 1 Brand, 130 bbl., pumping, 4,000 gal. acid, 5,195-5,255 ft.
Shell 4 Mann, 682 bbl., natural, ½-in. choke, 5,060-5,245 ft.

Hockley County

Slaughter field: Magnolia 1-D Mallett, 734 bbl., 1-in. choke, 10,500 gal. acid, 4,956-90 ft.
S. W. Richardson 5 Slaughter, 925 bbl., open casing, 7,500 gal. acid, 4,900-5,000 ft.
Stanolind 8-A Slaughter, 304 bbl., 1-in. choke, 7,000 gal. acid, 5,000-60 ft.

Howard County

Chalk-Roberts field: Superior Oil 7-D Roberts, 342 bbl., pumping, 30-qt. shot, 1,318-53 ft.

Scurry County

Sharon field: F. W. Merrick 2 West Texas Natl. Bank, 102 bbl., pumping, 980-qt. shot, 2,166-2,438 ft.

Yoakum County

Wasson field: Aloco Oil 1-A Miller, 700 bbl., 5,000 gal. acid, ½-in. choke, old T.D. 5,053 ft., deepened to 5,193 ft.
Aloco Oil 3 Randall, 442 bbl., open tubing, 10,000 gal. acid, 4,860-5,273 ft.
Aloco Oil 10-A Willard, 746 bbl., open tubing, 10,000 gal. acid, 4,895-5,214 ft.
Shell 15-D Baumgart, 1,570 bbl., open tubing, 10,000 gal. acid, 4,905-5,165 ft.

NORTHERN WEST TEXAS DRILLING REPORT

Andrews County

Phillips 1 Embar, 60 ft. S line Sec. 31, Blk. 10, University Lands Sur., cored 4,146-58 ft., slight show oil, T.D. 4,335 ft., P.B. T.D. 4,290 ft., making 3,500,000 cut. ft. gas and spray of oil.

Cochran County

Rhodes & Atlantic 1 Dean, C NE Tract 4, Lge. 89, Lipscomb County School Lands. Preparing to spud.

Gaines County

Fred Postello 1 Henry James, SE Sec. 368, Blk. G, C.C.S.D.&R.G.N.G. Sur., location.
Maloney Drlg. Co. 1 A. D. Neal, SW Sec. 34, C.&M. Cert. No. 414, location.

Hockley County

Cascade Pet. 1 Walker, Sec. 22, Lge. 22, McCulloch County School Lands, set 13-in. at 180 ft., drilling 450 ft.

Stonewall County

Shell 1 J. D. Patterson, SW NW Sec. 393, Blk. D, H.&T.C. Sur., Ordovician test, drilling 6,710 ft.

Yoakum County

Sloan & Zook 1 Waples-Platter, Sec. 565, Blk. 4, Gibson Sur., top Brown lime at 4,340 ft., slight show oil 5,240-60 ft., swabbed and flowed 167 bbl. oil in 24 hr., S.I. for gage.
Forest Development 1 A. C. Whisenant, SE Sec. 553, Gibson Sur., 1½ mi. N outpost to Waples-Platter area, top anhydrite 2,650 ft., top Yates 3,330 ft., drilling below 3,710 ft.
Amon G. Carter 4-D Wasson, NW SE Sec. 50, Blk. AX, Public School Lands Sur., 9,000-ft. test. Showed for 50 bbl. daily at 6,580 ft., drilling 6,700 ft.

SOUTHERN WEST TEXAS COMPLETIONS

Ector County

Goldsmith field: Gulf 309 Goldsmith, 1,100 bbl., tubing, 4,000 gal. acid, 4,174-4,244 ft.
Gulf 313 Goldsmith, 21 bbl., flowing on gas lift, 87-qt. shot, 4,174-4,210 ft.
Phillips-Pure 9 Cowden, 647 bbl., tubing, 5,000 gal. acid, 4,136-4,246 ft.
North Cowden field: Broderick & Calvert 15-A Holt, 514 bbl., ¾-in. choke, 310-qt. shot, 4,404-4,510 ft.
Rhodes & Tompkins 2 T.&P. land, 840 bbl., open casing, 310-qt. shot, 4,033-4,200 ft.
Stanolind 1-D Midland farms, 767 bbl., 1-in. choke, 490-qt. shot, 4,470-4,645 ft.
Foster field: Stanolind 47 Witcher, 930 bbl., open casing, 480-qt. shot, 3,865-4,085 ft.
Johnson field: I.T.I.O. 2-F Johnson, 996 bbl., open tubing, 200-qt. shot, 4,055-4,150 ft.

Pecos County

Lehn field: R. G. Pattillo 14-B Sullivan, 158 bbl., ¼-in. choke, 130-qt. shot, 1,675-1,705 ft.

Ward County

South Ward field: R. M. Barron 3 Blair, dry 2,219 ft.

Winkler County

Keystone field: Gulf 38 Keystone, 348 bbl., open casing, 400-qt. shot, 3,275-3,407 ft.
Ralph Lowe 2 Campbell, 429 bbl., open casing, 500-qt. shot, 3,130-3,302 ft.

SOUTHERN WEST TEXAS DRILLING REPORT

Brewster County

H. G. Storey 1 Wilson, Sec. 3, Blk. 212, T.&St.L. Sur., prepare to abandon 2,835 ft.

Crane County

Gulf 1-F University, SE SE Sec. 22, Blk. 31, University Sur., drilling 6,325 ft.

Ector County

Forest Development Corp. 1 Bradley, SE SE Sec. 18, Blk. 43, Twp. 3s, T.&P. Sur., S.D. 4,205 ft.
Forest Development Corp. 1-H Moss, SW NW Sec. 48, Blk. 43, Twp. 2s, T.&P. Sur., T.D. 4,300 ft., drilled first pay 4,075-4,120 ft., drilling plug on 5½-in. casing set at 3,976 ft.

Crockett County

Moore Exploration and Olson Drilling 1 Couch, W. S. Piggs Sur., show oil and gas 1,510-25 ft., drilling 1,930 ft.

Hudspeth County

Haymon Krupp 1 Briggs, Sec. 24, Blk. 73, Twp. 7, T.&P. Sur., 5½-in. casing cemented at 6,202 ft., T.D. 6,224 ft., cementing cavings last report.

Pecos County

S. D. Pattillo 1 O'Neil, Sec. 74, Blk. 10, H.&G.N. Sur., Ordovician test, T.D. 615 ft., lowering 10¾-in. casing, preparing to move in materials.
Landreth Prod. 1 McDonald, SE SE Sec. 37, Blk. 11, H.&G.N. Sur., tested sulfur water 1,640-50 ft., preparing to drill ahead.
S. D. Pattillo 1 Hoffman, SE NW Sec. 6, Blk. 141, T.&St.L. Sur., 2,000-ft. test, T.D. 890 ft., set 7-in. 855 ft.
Taubert, McKee & Siemoneit 1 Crockett, SW Sec. 4½, Blk. 3, H.&T.C. Sur., top Simpson 4,755 ft., drilling 4,875 ft., checking 27 ft. high on Simpson lime.

Presidio County

Wilcox 1 Conring, Sec. 102, Blk. 4, H.&T.C. Sur., running 10¾-in. casing at 1,038 ft., last report.
Wilcox 2 Jones-Coffield, Sec. 38, Blk. 34, H.&T.C. Sur., P.B. to 2,369 ft. from 2,399 ft., preparing to P.B. again, last report.

Sutton County

Domain 1 G. S. Allison, SW NE Sec. 91, Blk. 9, T.W. &N.G. Sur., Ellenburger lime test, S.D. 1,098 ft.

Terrell County

E. A. Thomason 1 Phelps, SE SE Sec. 73, I.&G.N. Sur., 5½-in. 1,492 ft., drilling 1,546 ft.
H. H. Sides 1 Rose, Sec. 15, Blk. 148, T.&St.L. Sur., location.

Reeves County

Roy Johnson 1 Perkins, Sec. 18, Blk. 7-C, P.S.L. Sur., drilling 1,570 ft.

Upton County

J. F. Slaughter 1 Porter, Sec. 184, Blk. E, C.C.S.D.& R.G.N.G. Sur., location.
B. H. Kean 1 Taylor, Sec. 22, Blk. 2-B, G.C.&S.F. Sur., S.D. 2,670 ft.

Ward County

Fitzpatrick & Slack 1 Wilson, Sec. 145, Blk. 34, H.& T.C. Sur., 1¼ mi. SE of discovery well, drilling 310 ft., last report.
Gulf 5 Wristen, Sec. 13, Blk. 5, H.&T.C. Sur., scheduled Ordovician test, top Ellenburger 9,022 ft., P.B. to 8,836 ft., sidetracked hole and lost bit, fishing.
Sinclair Prairie 1 Wirt Davis, 330 ft. NW, 2,310 ft. SW lines, Sec. 32, Blk. 4, H.&T.C. Sur., 3,500-ft. test, broken oil shows from 2,827 to 3,190 ft., T.D. 3,300 ft., hole 13° off vertical at 3,300 ft., bridged back to 2,500 ft., cleaning out 2,796 ft.

Winkler County

Gulf 147 O'Brien, SE Sec. 11, Blk. F, G.M.M.B.&A. Sur., drilling 1,313 ft.

TEXAS PANHANDLE

AMARILLO, Tex., Oct. 7.—Activity in the Texas Panhandle was slightly off during the past week. There were only 5 new locations made and 10 completions, one of which was a failure.

The completed wells consisted of six oilers for a total new production of 1,455 bbl. and three new gassers for an open flow of 50,300,000 cu. ft. daily.

PANHANDLE COMPLETIONS

(24-hour gages)

Carson County

Texoma 3-E Crutchfield, 14,100,000 cu. ft. gas, granite wash, 2,460-2,550 ft.

(Continued on Page 115)

Wilcox Sand Play Spreads As New Tests Are Started

By GEORGE WEBER

SHREVEPORT, La., Oct. 7.—A probable westward extension to the Olla field, and increased leasing and wildcatting in the general Olla-Jena-Tullos area of La Salle and neighboring parishes, makes that section the most active in the tristate area.

One of the highest wells in the Olla field was being completed during the week, as Arkansas Fuel Oil Co. tested 2 Hopkins, a west-edge well on the south end of the field. Further interest west of the field was incited by the showing of Wilcox oil in the same operators' 9-C Tremont Lumber Co., about 1½ miles west of the southern Olla extension. The Tremont test topped the Wilcox at an estimated depth of 1,615 ft., about 22 ft. lower than the nearest field well, but oil sand was cored, and an extension is expected next week.

Rowan & Hope have staked 1 Louisiana Central in 25-11-2e, a wildcat north of Olla. Further north, in Caldwell Parish, Placid Oil Co. abandoned 1 Cross last week without Wilcox shows of oil. The failure is 4½ miles of Olla proper.

The Wilcox play is extending westward into Winn Parish, where Atlantic Refining Co. have staked 1 L. & A. Oil Co., 29-10-2w, about 22 miles due west of Olla.

Olla completions during the past week reflected the activity in that field, with five new wells brought in on the north and east edges of the field and the south end.

EAST TEXAS BORDER

A south outpost test to the Joaquin field, Shelby County, Paul Pewitt et al 1 Swan is reported to be a failure. The test is believed bottomed at about 5,130 ft. with casing set on bottom and some porosity encountered. No information is being released on the test.

Claiborne Wildcat to Test

V. A. Hardin et al have set 5½-in. casing in No. 1 Valentine, Athens area wildcat in Claiborne Parish, southwest of Lisbon. The wildcat showed some oil in the lower Glen Rose and may result in a new field discovery. Total depth is 6,507 ft., and testing may get under way next week.

Other Claiborne Parish tests are drilling ahead. The deepest current test in the district is Ohio Oil Co. 15 Taylor, Haynesville, which is below 10,100 ft.

East of the Claiborne Parish activity, the only current wildcat in Lincoln Parish, C. H. Lyons 1 Dubach Lumber Co., was abandoned without shows at 5,513 ft.

Joaquin Outpost Tests Gas

The Union Producing Co. 1-B Garrett in De Soto Parish, a northeast outpost to the Joaquin field of Shelby County, Texas, having failed to find gas-condensate saturation in the Joaquin section of the lower Glen Rose, last week tested a small show of oil and condensate at a greater depth. A core taken at 5,975-95 ft. showed recovery of 10 ft. of shale and lime and 3 ft. of porous oolitic lime with an oil stain. A drill-stem test made at 5,975-95 ft., using ¼-in. chokes at top and bottom recovered 60 ft. of mud and condensate and 5,000,000 cu. ft. of gas. The tool was open 8 minutes. The test is being drilled deeper, below 6,070 ft. at latest reports.

ARKANSAS

Dorcheat Well Completing

McAlester Fuel Co. 1 K. J. Sayers, east-edge test at Dorcheat, is being completed for one of the best wells in the field. The test is running higher than other field wells, and may bring added interest to the east side of the Smackover lime field.

NORTH LOUISIANA COMPLETIONS

Bellevue—Bossier Parish

E. A. Jacobson 1 Ark. Fuel Oil . . SW SW SW 13-19-11
T.D. 581 ft., dry.

Wildcat—Bossier Parish

Roy L. Reese et al 1 Bellevue Land Co. . . . . SW SW NE 27-20-11
Junked and abandoned, T.D. 3,035 ft.

Caddo—Caddo Parish

(Chalk production)

J. W. Brown 1 Pitts . . . . . SW SW NE 18-21-15
Pumped 10 bbl., 4,000 gal. acid, T.D. 1,710 ft.
R. B. Creager 1 Muslow 4-20-15
80 bbl., 4,000 gal. acid, T.D. 1,500 ft.
W. C. Curry 2 Spell et al . . . . . NE SW 28-21-15
Pumped 20 bbl., 2,500 gal. acid, T.D. 1,545 ft.
Davis & Hart 3 Muslow . . . . . NE SW NE 5-20-15
75 bbl., 4,000 gal. acid, T.D. 1,502 ft.
Four Star Oil Co. 3 Muslow . . . . . SW 5-20-15
100 bbl., 3,000 gal. acid, T.D. 1,555 ft.
Juan & McFatrick 3 Hobbs . . . . . SE NE NW 28-21-15
Pumped 20 bbl., 3,000 gal. acid, T.D. 1,515 ft.
E. D. Mitchell 1 Pirkle . . . . . SE SE SE 12-20-16
Pumped 15 bbl., 4,000 gal. acid, T.D. 1,563 ft.
Steve Reele 1 Brooks . . . . . SE NW NE 12-20-16
Pumped 5 bbl. oil, 50 bbl. salt water, 4,000 gal. acid, T.D. 1,550 ft.
Southern Oil & Gas Co. 4 Muslow, SW SW NW 5-20-15
Pumped 20 bbl., T.D. 1,525 ft.
Stanolind 3 Dorian . . . . . NW NW SE 18-21-15
Pumped 10 bbl., T.D. 1,732 ft.

Wildcat—Caddo Parish

R. W. Crosby 1 W. E. Glassell . . . . . NW SW NE
T.D. ft., dry.

Wildcat—Caldwell Parish

Placid Oil Co. 1 Cross . . . . . SE SE 18-11-3e
Top Wilcox 1,595 ft., T.D. 3,032 ft., dry.

Olla—La Salle Parish

(Wilcox production)

Ark. Fuel Oil 1-A G. R. Lisenby Unit . . SE NE 12-10-2e
120 bbl., 14/64-in. choke, 3 per cent b.s. and s.w., T.P. 100 lb., C.P. 220 lb., perf. 2,200-07 ft., T.D. 2,240 ft.
Placid 33 La. Central . . . . . SW SW 30-10-3
96 bbl., 14/64-in. choke, 12 per cent b.s. and s.w., T.P. 340 lb., C.P. 700 lb., perf. 2,240-50 ft., T.D. 2,445 ft.
Placid 36 La. Central . . . . . NE NE 36-10-3
300 bbl., 20/64-in. choke, 18 per cent b.s. and s.w., T.P. 120 lb., C.P. 600 lb., oil sand 2,230-55 ft., T.D. 2,401 ft., perf. 2,234-54 ft.
Placid 45 La. Cent. . . . . NE SW 19-10-3e
192 bbl., 16/64-in. choke, 10 per cent b.s. and s.w., T.D. 2,398 ft., T.P. 190 lb., perf. 2,200-18 ft.
Placid 46 La. Central . . . . . SW NW 7-10-3e
85 bbl., 8/64-in. choke, 3 per cent b.s. and s.w., T.P. 525 lb., C.P. 800 lb., perf. 2,208-18 ft., T.D. 2,700 ft.

Wildcat—Lincoln Parish

C. H. Lyons 1 Dubach Lumber Co. . . SW NW 30-20-3w
T.D. 5,513 ft., dry, top massive anhydrite 3,782 ft., base 3,995 ft., top Travis Peak 5,188 ft.

Monroe—Morehouse Parish

United Carbon Co. 5 Crossett . . . . . NW SE 41-21-5
2,000,000 cu. ft. gas, R.P. 680 lb., T.D. 2,226 ft.

Bull Bayou—Red River Parish

Texas Co. 37-B Brinkerhoff . . . . . NE SE NW 30-13-10
Pumping 5 bbl., T.D. 2,504 ft.

NORTH LOUISIANA WILDCATS

Caddo Parish

J. M. Forgetson 1 Roberts . . . . . SE SE NW 10-22-15
Squeezed perf. and reperf. 2,670-2,700 ft., tested s.w., cemented off and perf. 2,540-2,660 ft., tested s.w., awaiting orders, old T.D. 3,225 ft.

Claiborne Parish

J. D. Caruthers, Tr. 1 Simmons Unit, N½ SW 2-20-5w
Top massive anhydrite 3,907 ft., base 4,126 ft., top Pettit 5,215 ft., top Travis Peak 5,307 ft., sand 5,349-56 ft., show oil, drilling red shale and sand, 7,358 ft.
V. A. Hardin et al 1 Valentine . . . . . NW NW 31-20-6w
T.D. 6,507 ft., set 5-in. casing.
Ohio Oil Co. 15 Taylor Acct. 1 . . . . NE SW SE 15-23-8
Drilling 10,180 ft.
Union Producing 1-A T. D. Meadows et al . . NE 18-21-4
Top massive anhydrite 3,762 ft., base 3,974 ft., Pettit porosity 5,011-18 ft., top Travis Peak 5,164 ft., drilling sand and shale 8,450 ft.

Concordia Parish

K. Hughes 1 Pittsfield 41-8n-10e
(45 ft. of the westerly west line of Sec. 40), set 9⅝-in. casing, 706 ft., top Cockfield 1,451 ft., drilling sandy shale 2,132 ft.

De Soto Parish

R. C. Swayles 1 Jackson . . . . . SE NW SW 36-12-14
Drilling shale 1,812 ft.
Union Producing 1-B Garrett . . . . . W½ SE 33-12-16
Coring 6,154 ft.

Grant Parish

Fay Oil Co. 1 Swope . . . . . SE SE 13-9n-1w
Top Wilcox 1,622 ft., coring sand 2,550 ft.

La Salle Parish

O. K. Allen, Jr., et al 1 Breedlove . SE SE NW 32-11-3e
Old T.D. 2,540 ft., P.B. 2,175 ft., S.D.

Red River Parish

Thornton & LaCroix 1 Prudential Life Ins. Co. . . . SW SW NW 31-11-9
T.D. 1,317 ft., will set casing.

Sabine Parish

Roy Raines 1 Carter . . . . . SW NW NW 27-9-11
Top chalk rock 1,950 ft., drilling 2,036 ft.

Union Parish

Tiki Exploration Co. 1 Jones . . . . SE SE NW 30-21-3w
Set 6-in. casing 2,300 ft., T.D. 3,200 ft.

Estimated Daily Production

Estimated daily gross production for week ending October 4 follows:

NORTH LOUISIANA

	Barrels
Bellevue	465
Caddo light	5,750
Caddo heavy	2,250
Converse	500
Cotton Valley	*13,600
Cross Lake	3,860
De Soto and Red River	1,005
Elm Grove	330
Haynesville	2,710
Holly	75
Homer	2,830
Lisbon	3,210
Olla	4,430
Pleasant Hill	90
Rodessa	17,750
Sarepta-Carterville	†245
Sligo	1,540
Sugar Creek	65
Urania	2,425
Zwolle	1,625
Total	64,725
Rodessa, Texas	16,335

SOUTH ARKANSAS

Atlanta	2,470
Big Creek	100
Buckner	1,980
Champagnolle	1,160
Dorcheat	1,000
El Dorado	1,650
Fouke	165
Lewisville	500
Lisbon	205
Magnolia	21,000
McKamie	580
Miller County	340
Nevada	750
Nick Springs	700
Rodessa	1,815
Schuler	17,200
Smackover light	1,630
Smackover heavy	13,525
Stephens	520
Troy	1,225
Urbana	1,800
Village	1,150
Total	71,465

*3,850 bbl. is distillate. †45 bbl. is distillate.

NORTH LOUISIANA FIRST REPORTS

Bellevue—Bossier Parish

Tide Water 2 G. O. Lodwick . . . . . NE SW 10-19-11
Tide Water 4 G. O. Lodwick . . . . . SE SW 10-19-11
Tide Water 6 G. O. Lodwick . . . . . SW SW 10-19-11
Tide Water 2 I. O. Lodwick . . . . . N½ S½ 10-19-11
Tide Water 4 I. O. Lodwick . . . . . S½ 10-19-11

Sligo—Bossier Parish

Triangle Drlg. Co. 3 Chatman . . . . . SW NE 18-17-11

Caddo—Caddo Parish

Davis & Hart 2 Muslow . . . . . NW SW NE 5-20-15
J. E. Kemp 1 Stoer . . . . . NW NW NW 32-21-15
Savage, Rowland et al 1-B Mansfield Oil Co. . . . . SW NE SE 1-20-16
Stiller Perkins et al 1 Stiles . . . . NW SW NE 28-21-16

Olla—La Salle Parish

H. L. Hunt 1 Urania . . . . . NE SW 25-10-2
Placid 48 La. Central . . . . . SE NE 35-10-2
Placid 39 La. Central . . . . . SW SW 36-10-2

Wildcat—La Salle Parish

Rowan & Hope 1 La. Cent. . . . . SW SW 25-11-2

Monroe—Ouachita Parish

Interstate 102 fee . . . . . NW NW NW 45-19-3e
Interstate 103 fee . . . . . SW NW NW 45-19-3e

Wildcat—Red River Parish

Spiers & Cummings 1 Paschal . . . . SE SE NE 11-14-11

Wildcat—Winn Parish

Atlantic Refining Co. 1 L. & A. Oil Co. SW SE 29-10-2w

EAST TEXAS BORDER WILDCATS

Bowie County

Lee Timberlake et al 1 J. B. Smith, T. H. Hill Sur., drilling 1,043 ft.

(Continued on Page 110)

By
NEIL WILLIAMS

Lolita and Rowan Fields Get Important Extensions

HOUSTON, Tex., Oct. 7.—Operators interested in development of the Texas Gulf Coast district centered their attention on the Ganado area, Jackson County, where preparations were being made to test Pure Oil Co. 1 Spacek, just southwest of the town of Ganado in the William Menefee Survey. The well was drilled to a total depth of 6,600 ft. and 5-in. casing was cemented at approximately 5,500 ft. Since the well was drilled "tight," it is not known where the well will be tested, although electrical surveys and sidewall cores are reported to have shown possible production at approximately 5,200 ft., 5,000 ft. and 4,900 ft. Since the opening of the Lolita field, and the spreading development at the West Ranch field, Jackson County during the past several months has received a widespread leasing campaign which is being followed up by an active wildcatting play.

The producing limits of the Lolita field, Jackson County, was extended into the Lolita townsite, opening the way for a town-lot drilling campaign by the completion of Shield Oil & Gas Co. and R. P. Rutherford 1 Mitchell. Drilled to a total depth of 6,375 ft., the well was completed through perforated casing at 5,932-36 ft. for an initial production of 92 bbl. per day through a ⅛-in. choke. Tubing pressure was 600 lb. and casing pressure 900 lb.

Rowan Field Extended

An east extension of approximately 2,000 ft. for the Rowan field, Brazoria County, was indicated as Rowan & Nichols and Texas Gulf Producing Co. 1 Bradbury, cored broken sand and shale with oil shows at intervals from 8,512-76 ft., and the well is coring ahead in shale below 8,772 ft. The Round Marginulina was topped at 7,420 ft. and the Flat Marginulina at 7,510 ft. Southeast of production, Stanolind 1 Hodnett topped the large Discorbis at 6,930 ft. and the Heterostegina at 7,170 ft. and is drilling in shale below 7,485 ft.

Pan American 1 Sisk, a south flank test at the Markham dome, Matagorda County, is bottomed at 8,012 ft. with the drill stem stuck. The well attracted considerable attention earlier in the week as the well blew out between the drill pipe and 10¾-in. surface casing, and blew drilling mud with a trace of distillate before it was brought under control.

In Galveston Bay and located offshore from Chambers County, Humble Oil & Refining Co. is preparing to test 2-A-246 State located about 1,100 ft. southeast of the discovery well of the Red Fish Reef field. Broken sand with oil shows were cored at intervals from 9,691-9,851 ft., the total depth, and the well is testing through perforated liner at 9,762-72 ft. Two of the company's operations were abandoned while drilling was started on two new tests. No. 1-B-288 State in the Red Fish Reef area was abandoned at 9,573 ft., while 1-C-45 State on the Fisher's Reef prospect was quit at a total depth of 9,300 ft. The new operations are 6-B-300 State and 2-C-46 State.

Gulf 10-A Bordages, a north extension test to the deep sand flanking the Fannett dom Jefferson County, topped the sand at 8,296 ft. and 5½-in. casing was cemented at 8,305 ft. Total depth of the hole is 8,315 ft.

Location for a test, northwest of the discovery well of the Mount Houston field, Harris County, was announced by J. M. English. The well is 1 Minor Stewart, Jr., in the Whitney Britton Survey. West of the discovery, H. C. Cockburn has cemented surface casing in 2 G. W. Burkitt.

TEXAS GULF COAST COMPLETIONS

Brazoria County

West Columbia field: Gulf 3 Mays, 397 bbl., ⅛-in. choke, top sand 5,674 ft., T.D. 5,693 ft.
Texas 16 Phillips, 512 bbl., ¼-in. choke, top sand 5,626 ft., T.D. 5,660 ft.
Gulfboard Oil Corp. 1 Milburn, Arcadia prospect, dry, T.D. 9,250 ft.

Chambers County

Anahuac field: Humble 32 Tyrell, 685 bbl., ¼-in. choke, top sand 7,016 ft., T.D. 7,080 ft.
Wildcat: Humble 1-C-45 State, Galveston Bay, dry, T.D. 9,300 ft.
Humble 1-B-288 State, dry, T.D. 9,573 ft.

Fort Bend County

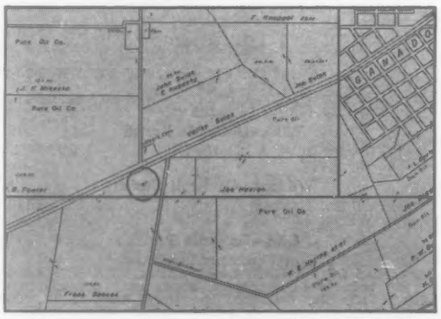
Thompson field: Gulf 19-B Wolters, 109 bbl., ⅛-in. choke, top sand 5,408 ft., T.D. 5,445 ft.

Galveston County

Dickinson field: Pure 7 Stewart, 313 bbl., 14/64-in. choke, perf. casing 7,810-25 ft., T.D. 8,321 ft.
Wildcat: Continental 1 W. S. Davis, top Round Marginulina 7,007-37 ft., Flat Marginulina 7,067-96 ft., Marginulina No. 7 7,196-7,226 ft., dry, T.D. 9,492 ft.

Harris County

Humble field: Wilson Oil Co. 4 Brown, 131 bbl., pumping, top sand 1,740 ft., T.D. 1,800 ft.



Zingery Map Co., Houston

Location of Pure Oil Co. 1 Spacek, a prospective pool opener in Jackson County just southwest of the town of Ganado

Tomball field: Humble 7-A Kobs, dry, T.D. 5,572 ft.
Humble 3 Martens, gas well, T.D. 5,580 ft., P.B. to 5,536 ft.

Jefferson County

Clam Lake field: Shell 10 McFaddin, 121 bbl., ⅛-in. choke, top sand 5,908 ft., T.D. 5,941 ft.
South China field: Pan American 3 Fontenot, 8 bbl., ⅛-in. choke, perf. casing 7,845-60 ft., T.D. 8,049 ft.

Liberty County

Hull field: Campbell Drilling Co. 1-A Crown Central, 429 bbl., ¼-in. choke, top sand 3,024 ft., T.D. 3,070 ft.

Polk County

Segno field: Gulf 38 Wing, 551 bbl., ¼-in. choke, sand 8,103-17 ft., T.D. 8,123 ft.

Tyler County

Joe's Lake field: Republic 43 fee, dry, T.D. 7,664 ft.

Wharton County

Magnet field: Humble 27 Cockburn, 112 bbl., ⅛-in. choke, top sand 5,542 ft., T.D. 5,544 ft.
Withers field: Texas 79-C Pierce, 125 bbl., ⅛-in. choke, perf. casing 5,293-5,304 ft., T.D. 5,384 ft.
Texas 80-C Pierce, 120 bbl., ⅛-in. choke, top sand 5,306 ft., T.D. 5,375 ft.

TEXAS GULF COAST DRILLING REPORT

Brazoria County

Humble 4 Bassett Blakely, Danbury dome, T.D. 6,634 ft., tested salt water 5,220-25 ft.
Phillips 1 Houston Farms Development Co., Chocolate Bayou field, drilling shale 2,100 ft.
Phillips 1 Triangle Development Co., Chocolate Bayou field, drilling shale 4,225 ft.

Chambers County

Humble 3-A-248 State, Galveston Bay, drilling shale and lime 6,963 ft.
Humble 2-C-46 State, Galveston Bay, spudded.
Humble 6-B-300 State, Galveston Bay, drilling shale 200 ft.

Colorado County

W. R. Davis 1 Brownson, 2½ mi. SW of Garwood, drilling shale 6,520 ft.

Fort Bend County

Titanic Oil Co. et al 1 Mazola, NE of Orchard field, drilling shale 6,520 ft.

Galveston County

Texas 1-237 State, Galveston Bay, drilling shale 8,110 ft.

Matagorda County

Helmerich & Payne 1 Herman, Sugar Valley prospect, drilling shale 2,060 ft.
Ohio 1 Blackburn, Sugar Valley prospect, drilling shale 4,826 ft.
Ohio 2 Cornelius, North Markham field, drilling shale 7,416 ft.

Orange County

Dick Schwab, 4 mi. NW of Mauriceville, T.&N.O. Sur., drilling shale 350 ft.

San Jacinto County

Coastal Drilling Co. 1 Gibbs Brothers, John Foster Sur., drilling shale 2,670 ft.

North Louisiana-Arkansas

(Continued from Page 109)

Cass County

Max Agress 1 Clark & Boise Lumber Co., Lot 2, B. Hawkins Sur., S.D., awaiting orders, 3,533 ft., plan to deepen.
H. A. King 1 Heilborn & Kay, D.&S.E.R.R. Sur., T.D. 4,202 ft., ran electrical survey, S.D.

Panola County

Holcombe & Thomason 15 Crenshaw, Thos. W. Cox Sur., drilling 2,704 ft.

Shelby County

P. & B. Oil Co. 2 W. C. Windham, A. K. English Sur., T.D. 3,362 ft., P.B. 3,360 ft., last reported pumping 80 bbl. fluid, 10 per cent oil.
Paul Pewitt et al 1 J. S. Swan, Ann Gray Sur., T.D. 5,130 ft. (?) set 5½-in. casing on bottom, awaiting orders.
Superior Oil Co. 5 Pickering, D. Gonzales Sur., spudded.

ARKANSAS COMPLETIONS

Lewisville—Lafayette County

East Texas Ref. Co. 2-B J. Bell Est., NW SE NW 19-16-23 Pumping 25 bbl., 5½-in. casing 3,403 ft., porous lime 3,447-55 ft., T.D. 3,460 ft.

Nick Springs—Union County

Fohs Oil Co. 1 J. D. Dunbar . . . SE NE NW 31-17-14 675 bbl., 18/64-in. choke, T.P. 540 lb., C.P. 780 lb., sand 3,730-44 ft., 7-in. casing 3,758 ft., T.D. 3,766 ft.

ARKANSAS DRILLING REPORT

Clark County

W. P. Wilson 1 Hamilton & Mathews SW NW 32-10s-20w 5⅛-in. casing, 1,557 ft., T.D. 1,572 ft., S.D.

Columbia County

Louark 1 Longino et al . . . . . NW SE 10-18-10 Drilling shale 7,411 ft.

Dallas County

H. H. McBride et al 1 Southern Kraft . SE SW 16-9-16 Drilling sandy shale 1,155 ft., top Arkadelphia 835 ft.

Lonoke County

Lunnon Howell & Ford 1 City of Cabot . . . . .18-4n-9w (NE Lot 1 Blk 6), S.D. 1,302 ft.

Miller County

John Coats 1 L. Ochsenbien. . . . . SE NW 19-14-27 S.D. 2,762 ft.
Love, Owens & Carter 1 Montata Realty Co. . . . . SW SW 10-17-28 Drilling shale and sand, 2,456 ft.

Prairie County

Hazen Oil Co. 1 Fidelity Mutual Life Ins. Co. . . . . NE NE SW 16-2n-6w S.D., waiting for casing, 125 ft.

Saline County

Tedford Drlg. Co. 1 Williams . . . . . 31-3s-15w Drilling 450 ft.

ARKANSAS FIRST REPORTS

Wildcat—Arkansas County

Jay Oil Co. 1 C. P. and B. Trice. . . . . NE SW 16-2s-3w

Magnolia—Columbia County

Louark 1 Mary R. Booth et al unit . . N½ N½ 30-17-19

El Dorado—Union County

H. H. Grimes 3 J. Williams . . . . . NE NW SW 8-18-14

Oklahoma Fields

(Continued from Page 105)

Stephens County

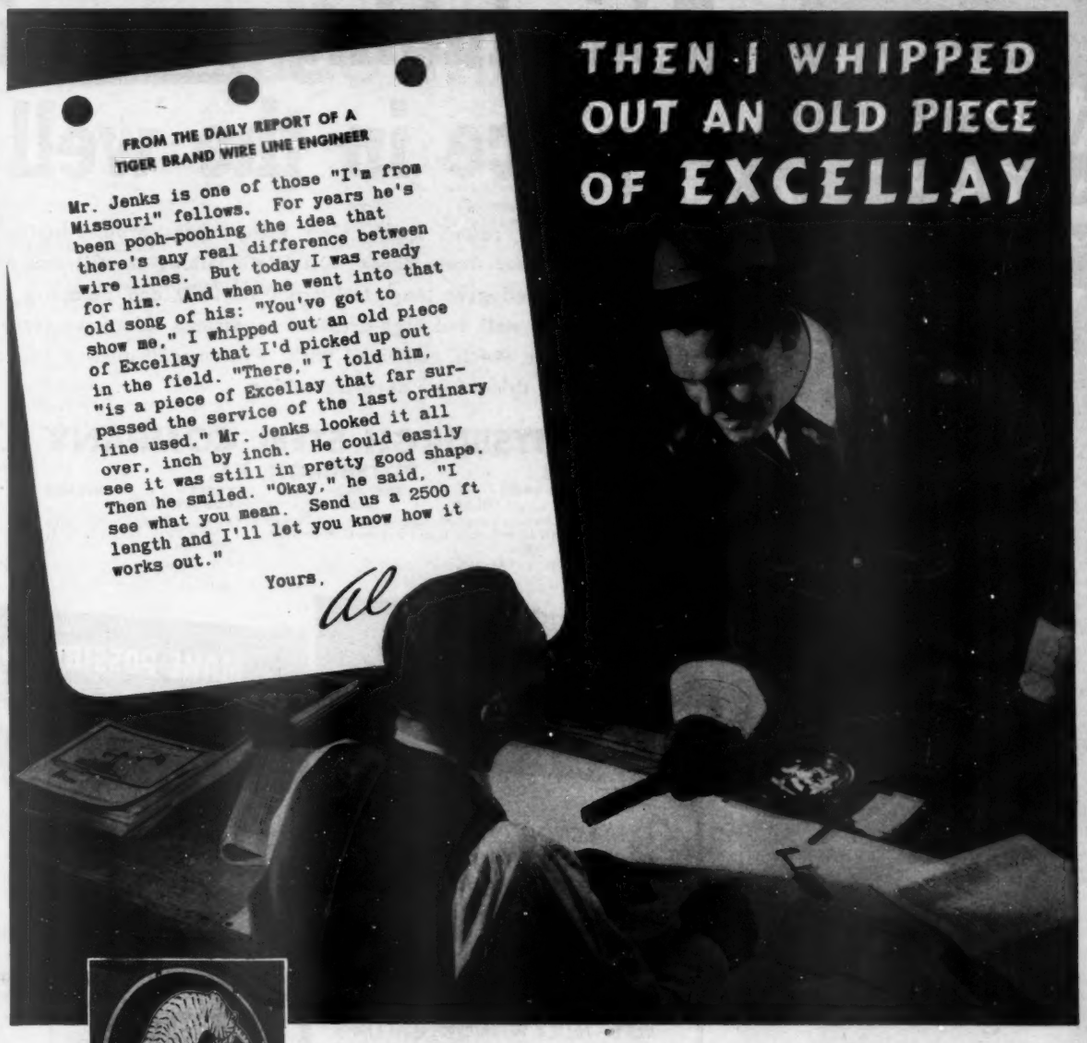
Sun Oil 1 Bouing . . . . . NE SW NW 9-1s-4w Oolitic 3,440-60 ft., white sand 3,505-65 ft., drilling 3,590 ft.
Brown et al 1 Dilly . . . . . C SE SE 6-3s-5w T.D. 1,838 ft., P.B. 1,350 ft., set casing 1,030 ft.

Wagoner County

Claude Jordan 1 Meriwether. . . . . NE cor. 16-18-17 Drilling 625 ft.

Woods County

Gulf 1 Hess . . . . . C NE NW 33-23-13w Drilling 980 ft.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Yours,
THEN I WHIPPED OUT AN OLD PIECE OF EXCELLAY

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8. SUPERIOR SERVICE AS OIL WELL TUBING

Pittsburgh Special OIL WELL TUBING
{with Acme Thread and Double-Seal Joint}

Deeper Producing Horizons in Fargo and Vogtsberger Fields

By R. MARNE SANFORD

WICHITA FALLS, Tex., Oct. 7.—The Fargo field in northern Wilbarger County and the Vogtsberger field in northeastern Archer County both produced from deeper levels during the week. Jack County's prospective discovery of last week has developed into a distillate producer and Clay County's indicated strike of last week has been quit as a failure.

About 2 miles north of the town of Fargo in northern Wilbarger County Amerada Petroleum Corp. has opened a second and deeper pay for its field discovered about 3 months ago at the 3,438-ft. level. The original discovery well was 1 Goodpasture. SW SW Section 35, Block 15, H.&T.C. Survey, which was completed for 225 bbl. of oil in 5 hours from a depth of 3,438 ft., plugged back from 6,717 ft. where it was dry. The new discovery is a mile south and slightly east of 1 Goodpasture and is on the Parker land in SW SE Section 36, same block and survey. No. 1 Parker is still testing after flowing 93 bbl. of oil in 11 hours from pay drilled from 4,407-76 ft. after treatment with 6,500 gal. of acid. The first pay in the field is in the Canyon and the new pay is believed to be in the Strawn. The field is on the northern flank of the Red River uplift running through central Wilbarger County.

New development was started for the field when Humble Oil & Refining Co. announced location for 1 E. A. Bond, NE NE NE Section 33, southwest offset to 1 Goodpasture. As a direct south offset to 1 Goodpasture Amerada is drilling 1 Waggoner, NW NW NW Section 36. In the extreme southwestern corner of Section 36 Amerada has another test going.

Vogtsberger Area

Walter Gant and Tom Medders 1 Vogtsberger, south east offset to the discovery well in the Vogtsberger field of northeastern Archer County, is indicating production from a deeper level as testing continues from a sand section in the Strawn. Missing the discovery pay level the new test, located in Block 3, German Emmigration Lands Survey, recovered 8 ft. of sand showing oil from 4,655-73 ft. Another 4 ft. of saturation was recovered in a core from 4,673-84 ft. The 7-in. casing was cemented at 4,646 ft. and when plug was drilled the hole was deepened to 4,725 ft. where it was bottomed in hard shale. Some streaked saturation was logged between 4,684 and 4,724 ft. As the week closed tubing was being run for preliminary tests.

Continental 1 Robertson, M. J. Swann Survey, 1½ miles south of the Bryson sand producing Mathis field and about 6½ miles southwest of Jacksboro, has developed into a distillate producer, however, the company officials believe steady oil flows will result after several days production of distillate. The well is producing from Marble Falls lime drilled with saturation from 4,651-62 ft. While drilling plug heavy gas pressures started pushing the plug up into the hole. First water and then mud was used to kill the gas flow so that the plug could be drilled out. The well blew an estimated 5,000,000 cu. ft. of gas for several hours and was then shut in to register a pressure of 1,750 lb. on the casing. As testing continued at the close of the week a heavy spray of oil was reported accompanying the gas.

A new location for the Mathis area immediately to the north is Wrightsman Oil 1 Mathis, ¼ mile south of the discovery well. Contract has been let and drilling is scheduled for early this week. It was announced as a 2,900-ft. Bryson sand test, however, should the zone prove lean or entirely barren, it would be carried deeper in search of the Marble Falls pay of the Continental well.

Clay County's indicated discovery of last week, Jones Associated Oil 1 B. Edwards, Block 40, Madison County School Lands Survey, has been quit as dry after going to the Ellenburger lime.

Cooke County

R. W. Talbot, Tulsa, has announced location for a 5,500-ft. wildcat test 1½ miles northwest of the Walnut Bend field in northern Cooke County. It will be 1 Austin & Sears, 330 ft. from the north and east lines of a 517-acre tract in the Alexander Horton Survey. It is reported that Sinclair Prairie, discoverer and largest producer in the Walnut Bend field, has appropriated $5,000 toward the drilling of the test, which is located on a farmout tract from Humble Oil & Refining Co.

NORTH TEXAS COMPLETIONS

Archer County

Anarene field: P. L. and Ben Andrews 2 Andrews, 10 bbl., 955-67 ft.
Cable Oil 17 Webb, 10 bbl., 695-706 ft.
Nicholson 6 Prideaux, 8 bbl., 633-52 ft.
Falls County field: Panhandle Refining 11 Green, 75 bbl., 1,118-22 ft.

Cooke County

Muenster field: Dodson & Powell 3 Linn, 200 bbl., 1,035-46 ft.
Texas 1 Cooke, dry at 1,478 ft.
Voth field: Humble 3 Hellman, 220 bbl., 1,266-80 ft.

Montague County

Nocona field: Texas 10 Gist, 72 bbl., 798-832 ft.

Wichita County

K.M.A. field: Cooper Bros. 56 Waggoner, 55 bbl., 3,752-4,034 ft.
Dalport Oil 5 Munger, 1,150 bbl., 3,794-3,874 ft.
Fain-McGaha Oil 16 Griffin, 500 bbl., 3,711-56 ft.
Hamilton 7 Martin, 2,300 bbl., 3,701-20 ft.
Hammon-Hanlon-Buchanan 27 Fassett-Tuttle, 688 bbl., 3,901-70 ft.

Heydrick Map Co., Wichita Falls

The Fargo field, opened several months ago by Amerada Petroleum Corp. in extreme northern Wilbarger County, is being given a new and deeper producing level in the Strawn as a mile-south outpost tests for completion. The deep discovery is the second well for the field, however, two tests are drilling and a new location has been made by Humble Oil & Refining Co.

Hanlon-Buchanan 11 Fassett-Tuttle "G," 265 bbl., 4,020-49 ft.
Hanlon-Buchanan 22 Fassett-Tuttle "G," 500 bbl., 4,083-4,119 ft.
High Point Oil 1 Burnett, 280 bbl., 4,026-4,137 ft.
Shell 11 Griffin, 1,388 bbl., 3,696-3,813 ft.
Shell 12 Preston, 1,100 bbl., 3,915-4,018 ft.
Sunray Oil 1 Denny, 456 bbl., 3,901-60 ft.
Tide Water 20 Ferguson, 508 bbl., 3,775-3,844 ft.
Electra field: Hammon 4-AA Hammon, 10 bbl., 1,277-1,314 ft.
Charles Klop 1 Jindra, dry at 1,972 ft.
Panhandle Refining 1 Waggoner, dry at 742 ft.
Ross Drilling 4 Waggoner, 7 bbl., 279-322 ft.
Ross Drilling 5 Waggoner, 6 bbl., 287-310 ft.
Ross Drilling 7 Waggoner, 5 bbl., 289-314 ft.
Texas 76 Honaker, 10 bbl., 1,040-58 ft.

Wilbarger County

Electra field: Davis 1 Waggoner, 75 bbl., 1,527-79 ft.
Davis 5 Waggoner, 10 bbl., 500-19 ft.
Grayback field: Paradise Oil 8 Waggoner, 15 bbl., 1,526-64 ft.

Young County

Olney field: Craig 1 Couper, dry 1,229 ft.
Craig & Wilson 1 Kee, dry at 1,173 ft.
D. W. Hunt 8 Gass, dry at 1,245 ft.
Kleiner 3 Prideaux, dry at 652 ft.
Martin 3 Hamilton, 10 bbl., 845-86 ft.
Palmer 9 Campbell, 10 bbl., 970-95 ft.
South Bend field: Conner & Collier 2 Scott, dry at 2,350 ft.
Markley field: Gilmore & Prideaux 1 Prideaux, dry at 730 ft.
Willis 9 Stewart, dry at 856 ft.
Willis 1 Stewart, dry at 870 ft.
Graham field: Long 1 Stovall, 5,000,000 cu. ft. gas 2,300-2,480 ft.
Strong 1 Ivey, 20 bbl., 3,550-60 ft.
Taubert-McKee-Siemonelt Drlg. 1 Shanafelt, 18 bbl., 3,960-4,415 ft.
Sewell field: Robitaille 6 Vaughan, 525 bbl., 3,916-4,068 ft.
Rowan Drilling 1 Sloan, 300 bbl., 3,695-3,768 ft.
Zweifel 2 Pistole, 1,100 bbl., 3,930-80 ft.

NORTH TEXAS DRILLING REPORT

Archer County

Walter Gant and Tom Medders 1 Vogtsberger, Blk. 3, G.E.C.L. Sur., 1,350 ft. SE of discovery well, 7-in. casing 4,645 ft., show oil 4,651-84 ft., running tubing to test.
Shell 1 Coleman, Lot 3, Blk. 74, A.T.N.C.L. Sur., T.D. 5,468 ft., set 4½-in. 5,458 ft.

Baylor County

Rogers & Lanfair 1 Howe, J. Lowe Sur., Abst. 572, S.D.O. 2,215 ft.

Clay County

W. B. Omohundro 1 Ida Wynn, Sec. 2, T.&N.O. Sur., old well drilled deeper from 6,070 ft., S.D. 6,656 ft.
L. T. Burns 1 Calloway, Lot 9, Hopkins County School Lands Sur., Abst. 178, T.D. 5,356 ft., new contract depth 6,000 ft., rigging up and S.D.
Walter Gant 1 Stine, Sec. 25, H.&T.C. Sur., 6,000-ft. test, 10-in. at 510 ft., drilling 5,330 ft.

Cooke County

Humble 1 Paul Rivoire, M. Charco Sur., 10 mi. NW of Gainesville, Abst. 214, drilling 3,595 ft.

Denton County

Amon G. Carter 1 W. P. and A. P. Allen, S. Westbrook Sur., S.D. 4,000 ft., planning to drill deeper.
Harvey Bros. 1 Knox, R. Howard Sur., Abst. 542, old T.D. 1,357 ft., show oil 1,467-93 ft., set 6⅝-in. at 1,465 ft., drilled plug, show oil and gas, testing.

Grayson County

Texas Co. 1 Hutchinson, Samuel Stewart Sur., northeast corner of county, 7,500-ft. test, drilling 1,890 ft.

Hardeman County

Norris & Gilbert 1 Robert Weekley, SW SE Sec. 87, Blk. 16, H.&T.C. Sur., show oil in lime 3,810 ft., drilled saturation 3,810-70 ft., show oil in lime 3,867-3,906 ft., 7-in. 3,906 ft., perf. and tested water, S.D.O.

Jack County

Continental 1 Robertson, M. J. Swan Sur., Abst. 1650, 4,600-ft. test, 7-in. 4,643 ft., testing 2,500,000 cu. ft. gas and spray of oil, still testing.
R. A. Conkling 1 M. Hoofle, A. James Sur., Abst. 318, 3 mi. S of Antelope, 3,500-ft. test, S.D. 2,410 ft.
Rathke Oil 1 Moseley, J. Harrison Sur., Abst. 259, drilling 4,430 ft.

Montague County

Walter Gant 1 Will Laird, R. T. Millard Sur., Abst. 470, 7 mi. W of Sunset, 6⅝-in. casing at 6,641 ft., T.D. 6,651 ft., preparing to perf. casing and test.
Seitz, Comegys & Seitz 1 Harris, B.B.B.&C. Sur., 10 mi. S of St. Joe, 6,000-ft. test, drilling 5,671 ft.

Wichita County

E. P. Bowen 1 F. M. McKinley, William Anglin Sur., 2 mi. N of Wichita Falls, contract depth 4,500 ft., drilling 4,150 ft.
E. C. Norwood 1 R. C. Chenault, I.&G.N. Sur., 2 mi. NW of Burkburnett, Ellenburger lime test, drilling 2,279 ft.

Wilbarger County

Charle Barnes and R. A. Andrews 1 Clarida, NE Sec. 97, Blk. 14, H.&T.C. Sur., first report.
Amerada 1 Parker, Sec. 36, Blk. 15, H.&T.C. Sur., 5½-in. 4,407 ft., show oil 4,437-55 ft., 5,000 gal. acid, est. 10 bbl. per hr., still testing.

Wise County

Cranfill & Rogers 1 McKay, Sec. 8, Falls C.S.L. Sur., fishing drill pipe 6,067 ft.

WEST CENTRAL TEXAS

FORT WORTH, Tex., Oct. 7.—Palo Pinto lime exploration in northeastern Jones County continued for another week to top the news of interest in the West Central Texas district. The new lime discovery well just north of the Avoca field was officially gaged and new activity was reported for the Nowles field on the Jones and Haskell County line.

King Oil 1 Olson, Section 189, B.B.B.&C. Survey, 1¼ miles north of the Palo Pinto lime producing Avoca field, was officially gaged to open a new field, as there are dry holes between the well and the Avoca field. It made 263 bbl. of oil in 8 hours or at the rate of 790 bbl. daily, much better than any well has yet done in the fairly new Nowles field to the northwest. The flow was through ¾-in. tubing choke under pressures of 320 lb. at the start of the 8-hour flow and 70 lb. at the finish. The gas-oil ratio was set at 400

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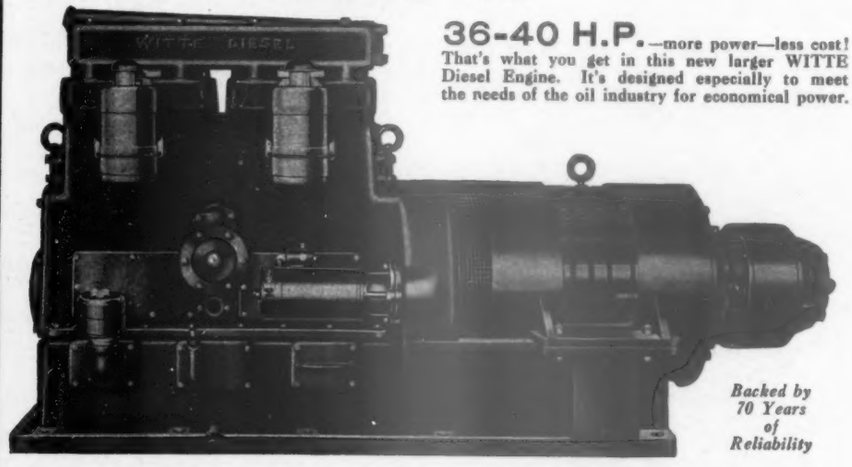

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to 1. As a diagonal northwest offset to the discovery well, King Oil is drilling below 300 ft. in its 1 Seth. Ungren & Frazier are preparing to start at a west offset to the discovery.

Another attempt to determine the trend of production in the Nowles field on the Jones and Haskell County line will be made by Danciger Oil & Refineries, Inc., and J. C. Hunter at a location to be definitely staked within the coming week. It is expected to be north of the original discovery well in southern Haskell County.

Fisher County

F. A. Stephenson 1 Maberry, wildcat in Fisher County and in Section 56, Block 1, H.&T.B. Survey, which indicated the opening of a new field about 2 weeks ago, is still testing with no official gage reported. The hole filled 800 ft. with 40-gravity oil after plug was drilled about a week ago. It was tested for several days during which time several heads of oil were credited to the well. At last reports it was swabbing and flowing an ungaged amount of oil from saturated sand drilled from 3,280 to 3,302 ft. The 5½-in. casing is cemented at 3,271 ft.

Concho Wildcat Resumes Work

The long shutdown Natural Resources 1 Armor, wildcat 1,315 ft. from the south and 330 ft. from the west lines of Section 105, T.&N.O. Survey, 5 miles northeast of Eden in Concho County is again active. Lloyd E. Cox, Dallas, is reported to have purchased the wildcat, its 80-acre drill site, and four other 80-acre tracts near the test, and is preparing to carry out the original contract depth of 3,250 ft.

The wildcat was shut down in December of 1939 after setting 10-in. casing at 1,185 ft. Charles D. Hagerty, contractor, is moving in new machinery and plans to start drilling this week. It is a projected Ellenburger, Lower Ordovician test, the Ellenburger lime occurring rather shallow in this part of West Central Texas.

WEST CENTRAL TEXAS COMPLETIONS

Brown County

Cross-Cut field: Elmore Oil 1 Triplett, 15 bbl. oil, 73 bbl. water, pumping, 1,327-33 ft.
Grosvenor field: Kynaston-Grossell 1 Byrd, dry at 1,410 ft.

Coleman County

Novice field Bradford-Robertson 3 Gillespie, 57 bbl. through tubing, shot 3,544-70 ft. and 3,571-75 ft.
Harper-Knappenberger 1 White, shot sand 3,577-3,600 ft., no results, dry at 3,635 ft.
States Oil 3 Coker, 151 bbl., 3,564-94 ft.

Jones County

Wildcat outpost to Nowles field: Hunter 1 Strand, top Palo Pinto 3,418 ft., pay from 3,425-28 ft., 24 bbl.
Lewis field: Petroleum Prod. 3 Bryant-Link, 150 bbl. through casing after 3,000 gal. acid 1,865-70 ft.

Shackelford County

Ghio field: J. P. Ray 1 Ghio, 10 bbl., 585-600 ft.
Cook field: Roeser-Pendleton 18-B-113 Cook, no show in lime 1,615-20 ft., dry at 1,675 ft.
Hamby field: Fox & Rudd 3 Shotwell, 51 bbl. fluid, 30 per cent water, 1,552-1,631 ft.

WEST CENTRAL TEXAS DRILLING REPORT

Callahan County

N. D. Gallagher 1 E. Grisson, SE part Sec. 2, Blk. 8, S.P. Sur., top lime 1,695 ft., underreaming casing at 1,685 ft., T.D. 1,703 ft.
Rhodes Drilling Co. 1 N. M. George, NW Sec. 75, O.A.L. Sur., 4 mi. E Baird, 2,700-ft. test.

Coleman County

Stuard 1 Minear, E. V. Otaw Sur. 244, location.

Comanche County

C. D. Lane 1 H. W. Strout, 3,080 ft. from N, 2,200 ft. from E lines of E. D. Corbett Sur., Abst. 154, 6⅝-in. casing 2,900 ft., P.B. to 3,660 ft., 200-qt. shot, testing 3,044-52 ft.
Lone Star 1 Watkins, Sec. 30, Blk. 3, B.B.B.&C. Sur., 3,000-ft. test, drilling 1,391 ft.

Concho County

Natural Resources 1 Armor, Sec. 105, T.&N.O. Sur., 5 mi. NE of Eden, prepare to resume drilling at 1,565 ft., contract depth 3,250 ft., to Ellenburger lime.

Eastland County

Dobbs Oil 1 Poe, Sec. 37, Blk. 3, H.&T.C. Sur., S.D. 2,400 ft.

Fisher County

F. A. Stephenson 1 Maberry, SE SW Sec. 56, Blk. 1, H.T.&B. Sur., 3,400-ft. test, cored 3,285-3,302 ft., recovered sand showing oil, set casing, drilled plug, 800 ft. O.I.H., 5½-in. at 3,271 ft., swabbing and flowing by heads 3,302 ft., T.D.
General Crude Oil 12 Flanigan, center of old Royston field, Ordovician test, drilling 2,370 ft.

Hamilton County

A. J. Caldwell 1 W. W. Jones, 1,002 ft. from NE, 150 ft. from SE lines, W. H. Crowder Sur., S.D. 3,010 ft.
C. J. Meyers 1 Oats, 420 ft. from S and 1,035 ft. from E lines, F. Hughes Sur., 4,000-ft. test, Fishing 455 ft.

Haskell County

Bradford & Robertson et al 1 Coody, SW cor. N. Hapgood Sur., Palo Pinto lime test, spudding.

Hood County

Aztec Oil 1 Gallagher, 500 ft. from S and 1,326 ft. from

E lines of Robert Alway Sur., 3,000-ft. test, drilling 225 ft.

Jones County

T. D. Humphrey 1 Leslie & Lipman, 2,705 ft. from N and 4,320 ft. from E lines of Sec. 18, Blk. 15, T.&P. Sur., 2,800-ft. test, rigging up machine.
Best 1 A. A. McDuff, 5,200 ft. S, 1,100 ft. E lines of J. J. Hughes Sur., set 6⅝-in. casing at 2,040 ft., S.D. 2,393 ft.

Parker County

Brown & Gardner Bros. 1 Gilbert, T.&P. Sur., Abst. 1958, fishing tools 4,800 ft., T.D.
C. Leidecker and William Holland 1 J. A. Boyd, NE NE of S 100 acres of A. J. Edwards Sur., 4,500-ft. test, S.D. 2,410 ft.

San Saba County

Three Widows Oil 1 Ballard, NW cor. S½ Sec. 80, H. Behrenroth Sur. 506, 2,000-ft. test, S.D. for 10-in. at 450 ft.

Shackelford County

Tal Vez Oil 1 Dyer, Sec. 83, Blk. 12, T.&P. Sur., drilling 1,090 ft.
Carson 1 Elliott, Sec. 49, B.A.L. Sur., resumed drilling after being S.D. at 1,685 ft., Caddo lime test to 3,620 ft., drilling 2,785 ft.

Stephens County

Gourley & Fagg 1 Rogers, Sec. 28, Blk. 5, T.&P. Sur., drilled saturation 3,663-80 ft. and 4,010-26 ft., cleaning out, top Ellenburger 4,318 ft., preparing to abandon 4,415 ft.

Tarrant County

Hickey 1 Baltzelle, NE cor. William Scott Sur., fishing casing 935 ft.

Taylor County

Ce-beth Oil 1 City of Abilene, south shore of Lake Abilene on city property, 4,000-ft. test, corrected report, drill pipe stuck, T.D. 1,940 ft., S.D.
K. B. Nowles 1 Hardin-Simmons Univ., S½ NW Sec. 36, Lunatic Asylum lands, 9½ mi. S Abilene, rigging up machine.

Permian Basin Fields

(Continued from Page 106)

Texoma 2 Urbanczyk, 18,990,000 cu. ft. gas, granite wash, 2,445-2,730 ft.

Gray County

Nabob Oil 7 Morse, dry at 2,952 ft. in lime.

Hutchinson County

Clay Bros. 1 Carber "B," 56 bbl., lime 3,221-70 ft.
J. M. Crosbie 36 Pitts, 429 bbl., pumping, shot 575 qt., lime and granite wash 2,780-2,820 ft.
Gulf 100 Dial, 174 bbl., pumping, shot 370 qt., lime and granite wash, 2,979-3,054 ft.
Kewanee 46 Badger-Lewis, 397 bbl., pumping, granite wash, shot 250 qt., 2,998-3,004 ft.
Martex 3-B Pitcher, 162 bbl., pumping, shot 80 qt., granite wash, 3,120-70 ft.
Skelly 6 Watkins "B," 237 bbl., pumping, shot 500 qt., granite wash, 2,758-2,850 ft.

Moore County

Barnsdall 4 Harrington, 17,300,000 cu. ft. gas, 7,000 gal. acid, lime, 2,935-3,100 ft.

DRILLING REPORT

Cottle County

Ramsey Pet. 1 Lynch, SE SW 66, J. Poltevent Sur., 5,000-ft. test, drilling 3,967 ft.

Motley County

Humble 1 Matador, Sec. 29, Blk. J, B.S.B.&C.N.G. Sur., drilling 3,725 ft.

Ochiltree County

James R. Macon 1 W. R. Norris, SW SE Sec. 212, Blk. 43, H.&T.C. Sur., T.D. 6,274 ft., P.B. 4,300 ft., swabbing through casing to 3,900 ft., recovering some oil and water.

Swisher County

Krupp-Flaherty 1 Kleen, Sec. 120, Blk. 10-M, 6,500-ft. test, top salt 1,020 ft., S.D., casing 1,747 ft.

SOUTHEAST NEW MEXICO

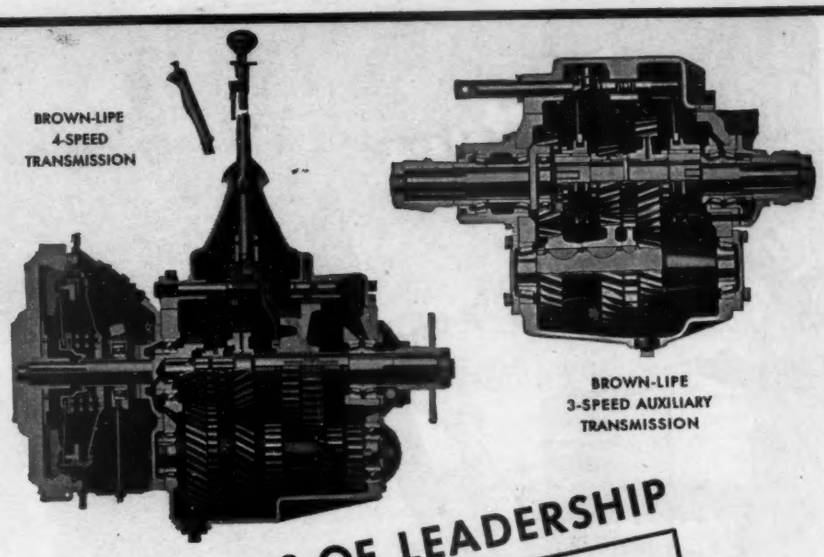
HOBBS, N. M., Oct. 7.—Three new wildcat tests were started in Eddy County during the past week to enliven that county's exploratory drilling program. Lea County's deep wildcat, Ventura Oil 1 Lowe, has been quit as a failure after going to a total depth of 6,300 ft.

About ½-mile west of the recently abandoned test by Paul Moran as his 1 Ramuz in Eddy County which showed a promising amount of oil in the Delaware sand, Fred Turner and D. C. DeVito, both of Midland, have located 1 DeVito. It is projected to the Delaware sand and is located SE SW SE 12-23s-25e.

Also in Eddy County machine is being rigged up for the E. L. Fulton 1 Edith Johnson, new location NW NW SE 22-19s-27e. It is about 2 miles east of Lake McMillan in central Eddy County.

The third wildcat for Eddy County is Truett & Tallmadge 1 Rudahl, 2,420 ft. from the south and 490 ft. from the east line of 2-20s-24e. This wildcat is in the far western part of the county.

In Lea County final failure has been recorded for the Ventura Oil 1 Lowe, deep wildcat test NW SE 26-13s-37e. Reaching its original contract depth of 6,000 ft. about 2 weeks ago, Phillips Petroleum Co. then appropriated $5,000 for deepening another 300 ft. Several streaked sections of oil-bearing lime were logged by the wildcat, however, no water-bearing strata were found throughout the entire 6,300 ft.



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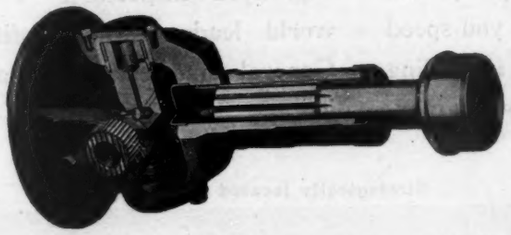

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SOUTHEAST NEW MEXICO COMPLETIONS

(Week September 23-28)

Chaves County

Wildcat: E. J. Fisher 1 Hill, NW SW 8-15-25, dry, deepened from 850 ft. to 968 ft.

Eddy County

Leonard field: Thomas & Flint 1 Root, NE NE 12-17-29, abandoned location.

Loco Hills field: D. H. Randell 1 Gates, NE SE 22-18-30, 12 bbl. daily through open tubing, shot, 3,270-80 ft.

Lea County

Penrose field: Rowan Drilling 1-B Elliott, SE SE 15-22-37, abandoned location.

Cooper field: Western Gas 3 Toby, NW SE 12-24-36, 120 bbl. through open tubing, shot, 3,500-95 ft.

Roosevelt County

Wildcat: C. S. Peterson 1 Good, Sec. 28-5-30, T.D. 1,230 ft., dry.

SOUTHEAST NEW MEXICO COMPLETIONS

Chaves County

Roxana Oil 1 Franks ..... NE NW NW 17-9-25
Abandoned location.

Roxana Oil 1 Maull ..... SW NE NW 11-12-25
Abandoned location.

Eddy County

Mac T. Anderson 4 Root ..... SW NW 7-17-30
Dry in salt 546 ft.

Continental & Yates 5 Brainard .. SW SW NE 3-18-29
240 bbl. through 38/64-in. choke, 200-qt. shot, 2,594-2,613 ft.

Carper 1 Hinkle ..... SW SW SE 34-18-31
300 bbl. through open tubing, 40-qt. shot, 2,660-75 ft.

G. A. Grober 1 Wright ..... C SE NW 25-18-28
Dry, 440 and 60-qt. shots at 2,400 ft.

Lea County

Cities Service 4-N State ..... NE SW SW 2-22-36
58 bbl. in 10 hr. through open tubing, 1,000 gal. acid, 3,735-3,835 ft.

Stanolind 6-B Meyers ..... C S½ SW NW 7-24-37
65 bbl. oil in 16 hr. through 16/64-in. choke with 41,000 cu. ft. gas, 180-qt. shot, 3,530-95 ft.

Texas Co. 23 Lieu lands ..... C NW SW 20-20-37
50 bbl. in 5 hr. through open tubing, 9,000 gal. acid, 3,820-50 ft.

Wilson Oil 7 Shell-State ..... SE NW 7-21-35
120 bbl. daily, natural, 3,732-3,819 ft.

Gulf 7 Ramsey ..... C SE SW 35-21-36
62 bbl. in 4 hr. through open tubing, natural, from 3,790-3,870 ft.

Texas Co. 3-D State ..... C SE SW 27-17-34
Pumped 4 bbl. each 3 days, 1,000 gal. acid, and 240-qt. shot from 4,592-4,760 ft.

Texas Co. 3-Z State ..... C SE NW 2-18-34
170 bbl. in 6 hr. through ¾-in. choke, natural, 4,465-4,710 ft.

Venture Oil 1 Lowe ..... C SW SE 26-13-37
Dry at 6,300 ft.

B. Cockburn 19-B Baish ..... C NW SW 27-17-32
150 bbl. in 24 hr., 150-qt. shot, 3,850-3,938 ft.

Carper Drlg. Co. 1-N Simon ..... C NE SW 29-17-32
200 bbl. in 24 hr., open tubing, 110-qt. shot, 3,711-47 ft.

Carper Drlg. Co. 2-N Simon ..... C NW NW 29-17-32
200 bbl. in 24 hr., open tubing, 110-qt. shot, 3,682-3,716 ft.

North Shore Oil 1-A State ..... SW NW NE 16-20-32
142 bbl. first and second hour and 136 bbl. third hour through open tubing, natural, 2,495-2,505 ft.

SOUTHEAST NEW MEXICO DRILLING REPORT

Chaves County

H. Steinberger 1 Headley ..... NW SW 26-14s-29e
Set 10-in. 350 ft., drilling 355 ft.

Martin 1 Stephens ..... NW NE 22-15-29
Old failure drilling deeper, S.D. 2,500 ft.

Dona Ana County

Armstrong 1 Baker ..... NW SW 4-23-1
15½-in. at 60 ft.

Eddy County

Turner & DeVito 1 DeVito ..... SW SE 12-23-25
First report.

Fulton 1 Johnson ..... NW SE 22-19-27
First report.

Truett & Tallmadge 1 Rudahl ..... NE SE 2-20-24
First report.

Wills & Abell 1 Hale 12-20-30
6,000,000 cu. ft. gas from 1,540-60 ft., sulfur water at 1,823-24 ft., preparing to P.B. and perf. in gas zone.

Dooley & Haynes 1 Martin ..... SE NW 9-18-25
S.D. 815 ft. in sand.

Knox & Featherstone 1 Hatchett ... SW NE 14-20-26
Set 8¼-in. at 377 ft., drilling 485 ft.

Beddingfield & Walker 1 Seale..... SE SE 10-20-27
S.D. 1,071 ft.

Talmadge 1 State ..... SW NE 24-16-28
Slight show oil 2,505-15 ft., S.D.O. 2,605 ft.

Jones & Yates 1 Everest ..... NE SE 15-18-26
Drilling 1,004 ft. in lime.

Trojan 1 Grant ..... SW NE 33-20-25
Set 8¼-in. at 1,300 ft., T.D. 1,593 ft., W.O.C.

Shumacher 1 Levers ..... NE NE 33-16-29
T.D. 2,825 ft., 1,500 ft. oil in hole, putting on pump.

M. Yates 1 Williams ..... NE NW 25-18-26
Pits.

Black & Ratliff 1 Simmons ..... SE NW 9-21-25
S.D. 1,030 ft.

A. & M. Petroleum 2 State ..... NW SE 15-21-17
S.D. 350 ft.

Clark & LaNeve 1 Boulter ..... SE NW 28-19-27
Oil sand 885-90 ft., 7-in. set at 880 ft., T.D. 890 ft., fishing tools.

Lea County

Stanley & Weiner 1 Saunders ..... NE NE 20-21-38
Fishing 3,980 ft.

Great Western Prod. 1-D State .... SE SE 30-12-32
Slight show oil and salt water from 3,022-32 ft., 7-in. set at 3,048 ft., drilling 3,977 ft. in lime.

Otero County

R. H. Ernest 1 Located Land Co. ..... SE SE 20-25-7
S.D. 3,729 ft.

Sierra County

Clyde R. Wofford 1 Graham-State ... SW SW 8-14s-2w
Location.

By
L. P. STOCKMAN

Curtailment Becomes Problem As Storage Remains High

LOS ANGELES, Calif., Oct. 7.—Crude-oil curtailment is still the biggest problem confronting the California oil industry and Kettleman Hills holds the key to success or failure of attempts to reduce production to the amount set by the Conservation Committee. Kettleman North Dome field has been producing approximately 47,700 bbl. daily for several months against an allotment of 32,287 bbl. per day. Operators in this field have consistently disregarded established allotments and are weakening the present curtailment program. Operators in other fields claim they have just as much right to overproduce as Kettleman Hills and many will continue to overproduce as long as Kettleman remains out of line. Very little progress has been made during the past several weeks due to inability to induce Kenda to make the additional reduction necessary to bring field production down to the established allotment. It would be interesting to check bottom-hole pressures at Kettleman North Dome because the field shows every indication of experiencing a rapid drop in pressures.

September Production

State production of crude oil for September was approximately 5,000 bbl. per day below the daily average for August and is therefore about 40,000 bbl. per day in excess of the prescribed allowable of 571,000 bbl. It is quite obvious that the curtailment program is not functioning as effectively as might be desired and that something must be done in the immediate future to remedy a situation that presents a serious threat. No difficulty is expected within the next few weeks but later in the year when consumption declines we may anticipate a disruption in the production curve because it is extremely unlikely that marketing companies will begin storing crude and refined oils in the face of an overproduction. The existing curtailment program is based on the assumption that marketing companies would be able to reduce stocks during the summer months and accumulate an equal amount during the winter period when consumptive demand is lowest. This is an ideal situation but unfortunately stocks have only been reduced 1,053,265 bbl. during the first 8 months and unless additional reductions take place during October there will be very little leeway. The reluctance of marketing companies to accumulate any great amount of stocks reflects the probability that consumptive demand may for the first time show a slowing up during 1941. This would reflect the draft of men of military age which is expected to throw a number of cars on the secondhand market in addition to a relatively large number that will be left in the garage or driven less often. Certainly there is little possibility that mechanized units under the new armament program will be a factor of any consequence. Present attempts to effect curtailment are being concentrated on efforts to secure compliance with the existing program rather than making any additional plans to extend the program. Notice has been served on several operators by land owners that they will not sanction a reduction in the top-well allowable below 150 bbl. daily. This means that the future top will be set at this figure which means that there will be little change in the state's allotment during the next several months.

Slim-Hole Drilling

Slim-hole drilling which was developed in the Mid-Continent and Gulf Coast areas is receiving more attention in California with the passing of each successive week. Shell Oil Co., Inc., was the first to utilize this method having begun actual work last June. For the past several months, all wells that Shell has completed in the Ten Section field in the San Joaquin Valley has been by this method. Union Oil Co. has drilled one slim hole in California to date but will undoubtedly undertake additional work along this line since the first hole resulted in a saving of about $35,000 in drilling costs which includes casing and wages. This well was drilled in the Rio Bravo field where production is found below 11,000 ft. The ordinary casing program for this field consists of 12¾ or 13⅜-in. surface casing, then approximately 11,200 ft. of 7 or 7⅝-in. water string followed by 200 or 300 ft. of 5¾-in. liner. Drilling costs from location to production in the tanks approximate $125,000. Union's slim hole was drilled from spud to completion in 54 days and included 1,520 ft. of 11¾-in., 11,252 ft. of 5½-in. and 236 ft. of 4-in. liner. Bottom of the hole was 11,475 ft. and the well, 65-34 Kern County Land, was completed flowing 1,396 bbl. of clean 39.1-gravity oil and 1,620,000 cu. ft. of gas per day.

In addition to reducing pipe costs and drilling time a further saving is made in the utilization of 2-in. tubing instead of 2½-in. tubing such as is customarily used. Shell Oil Co., Inc., drilled its last normal diameter hole in the Ten Section field last June and since that time all subsequent completions have been slim-hole jobs. The last regular completion before inauguration of slim-hole drilling was 8-19-A Kern County Land which required 990 ft. of 11¾-in. surface pipe; 8,045 ft. of 7-in.; 73 ft. of 5½-in. liner and 8,019 ft. of 2½-in. tubing. Shell's 52-29 Kern County Land in the same field and a recent completion required only 992 ft. of 9⅝-in. casing, 7,985 ft. of 4½-in. casing, a 3½-in. liner and a string of 2-in. tubing. This well was drilled from spud to completion in 27 days as compared with 35 days in 8-19-A Kern County Land a normally drilled well using large diameter hole. Shell's latest plan is to drill down to the desired point and then land a solid string of 4½-in. and gun perforate opposite the oil sand. This eliminates the use of a 3½-in. liner and speeds up drilling. Use of a single string of casing carried through the oil sand requires a cement job through perforations above the top of the productive zone.

Application of slim-hole drilling in California is expected to be a factor of importance in future drilling and consequently will be reflected in a tangible way in future curtailment. California operators have been slow in adopting this improved method of drilling because there has been a desire to maintain as large a hole as possible. The use of large diameter holes is particularly advantageous in fields with several productive zones as this permits deepening from one zone to another with a minimum of trouble. Slim-hole drilling has certain inherent advantages in areas like Ten Section, Greeley, Rio Bravo, Tupman, Cole's Levee, Southeast Coalinga and other San Joaquin Valley fields. It would have been especially advantageous in some wells in the Montebello field but as a rule it would have prevented deepening operations such as has occurred in that district. Slim-hole drilling presents a serious threat to curtailment because it will lessen the drilling time and lead to additional development. This has been a source of considerable anxiety during the past several months because the rapid strides made in drilling has complicated the curtailment problem.

Cole's Levee—Tupman

Richfield Oil Corp. is still pursuing its aggressive development program in the Tupman and Cole's Levee fields of Kern County and at present is running 17 strings of tools. Of this group three wells are making hole below 9,000 ft., seven are going ahead between 8,000 and 9,000 ft., two are drilling between 7,000 and 8,000 ft., five are making hole above 6,000 ft. and five are in other stages ranging from piles to derricks standing. This aggressive development program has been undertaken because of its extensive leases in the Cole's Levee and Tupman districts and also to offset loss of its leases in the Elk Hills field to the west. Richfield Oil Corp. has five leases in the Elk Hills field that expire the middle of next year due to expiration of a government lease for 20 years. The federal Government has indicated that it will not renew the leases as the Navy Department desires to establish a complete naval reserve at Elk Hills. In order to do this, the federal Government will be obliged to start condemnation proceedings against Standard Oil Co. and other operators producing from fee-owned acreage.

Elk Hills Naval Reserve

The U. S. Navy Department through action taken against Richfield Oil Corp. and Standard Oil Co. has a total of 68 wells on acreage within the Naval Reserve that encompasses the Elk Hills field. When it takes over the Richfield Oil Corp. properties through expiration of the leasehold it will come into possession of 55 additional wells. Richfield's current production at Elk Hills approximates 4,000 bbl. daily. This company has endeavored to secure an extension of its leases without success and for this reason is not bound to conform strictly with curtailment. It had hoped to extend the leases for a period long enough to secure the amount of production to which it was entitled. The Navy Department refused to agree with the company's suggestion. Richfield wanted to curtail its properties in the Elk Hills field but has been unable to do so and at the same time protect its interests. This unavoidable condition is the reason for the excess production of Elk Hills.

SAN JOAQUIN VALLEY COMPLETIONS

Kettleman North Dome Field

K.N.D.A. 23-20-J 20-21s-17e
Flowed 314 bbl., 47.1-gravity, 6.5 per cent cut, 5,200,000 cu. ft. gas. T.D. 10,869 ft. Completed in Avenal sand of Eocene age. 6⅝-in. water string cemented 10,694 ft. 195 ft. of 4¾-in. liner 10,864 ft. Perforated 10,725-10,864 ft. 9,500 ft. of 2½-in. tubing. Top brown shale 6,390 ft., top Temblor 7,630 ft., top McAdams sand 10,695 ft., top Avenal sand 10,720 ft. Fresno County.

Mount Poso Field

Crestmont 1 Smith 11-26s-27e
T.D. 2,504 ft. in Walker gray sand. Top Vedder zone 2,480 ft. Vedder barren. Abandoned. Kern County.

Universal 1 Villard 18-26s-28e
T.D. 1,928 ft. Top Jewett zone 1,842 ft. Top Vedder zone 1,918 ft. Vedder zone gray and barren except for few inches oil-stained sand on top. Abandoned. Kern County.

Rio Bravo Field

Superior 2 Smith 34-28s-25e
Flowed 1,565 bbl., 38.2-gravity, 1,945,000 cu. ft. gas. T.D. 11,470 ft. 7⅝-in. water string cemented 11,272 ft. Top productive Rio Bravo zone 11,272 ft. Bottomed in oil sand. Located in west side of field in Kern County.

Union 25-34 Kern County Land 34-28s-25e
Flowed 1,150 bbl., 38.3-gravity, 1,200,000 cu. ft. gas. T.D. 11,441 ft. 7-in. water string cemented 11,342 ft. 115 ft. of 5-in. liner including 95 ft. of perf. 11,440 ft. Top productive Rio Bravo zone 11,345 ft. Top productive Vedder sand 11,400 ft. Pressures with 7/64-in. bean 1,450/1,650 lb. Located center of field in Kern County.

Ten Section Field

Shell 2-29-A Kern County Land 29-30s-26e
Flowed 2,336 bbl., 33.8-gravity, 2,043,000 cu. ft. gas. Pressures 150/1,080 lb. T.D. 8,235 ft. 4½-in. casing 8,235 ft. Perf. 7,955-8,054 ft., 8,096-8,235 ft. Cemented through perf. 7,950 ft. No liner used. Flowing through 2½-in. tubing. Top productive Stevens oil sand 7,907 ft. 30 days total elapsed drilling time from spud to completion. Kern County.

Shell 52-29-A Kern County Land 29-30s-26e
Flowed 1,675 bbl., 33.9-gravity, 2,6 per cent cut, 1,449,000 cu. ft. gas. T.D. 8,235 ft. 4½-in. casing landed and cemented at 7,985 ft. with 425 sacks of cement. Top of productive Stevens oil sand 7,907 ft. 24 days total elapsed drilling time from spud to completion by slim-hole drilling method. Kern County.

Shell 78-29-A Kern County Land 29-30s-26e
Flowed 1,118 bbl., 32.7-gravity, 924,000 cu. ft. gas. T.D. 8,220 ft. Pressures 100/1,050 lb. Drilled by slim-hole method. 8⅝-in. casing cemented 966 ft. 4½-in. casing cemented 8,071 ft. 168 ft. of 3½-in. liner landed 8,215 ft. Perf. 8,075-85 ft., 8,110-8,215 ft. 8,042 ft. of 2½-in. tubing. "N" point 7,680 ft., top Stevens oil sand 8,045 ft. Bottomed in same zone. 38 days drilling time. Kern County.

SAN JOAQUIN VALLEY OUTPOSTS

Cole's Levee Field

Standard 20-8 Kern County Land 5-31s-25e
Derrick foundation location 990 ft. S, 2,075 ft. W from E¼ cor. 5-31s-25e. One mile west of production. Kern County.

Kettleman North Dome Field

Standard 344-13-H fee 13-21s-16e
Drilling hard shale 9,470 ft., scheduled for completion in Eocene, extreme western end of structure. Fresno County.

Standard 1-1-V fee 1-23s-18e
Drilling hard shale at 7,288 ft., scheduled for completion in Temblor, extreme eastern end of structure. Kings County.

Rio Bravo Field

Superior 1 Curtis 28-28s-25e
Drilling 9,984 ft. in sandy shale. West extension test. Kern County.

Union 72-28 Crites 28-28s-25e
Rigging up rotary. Northeast extension test. Kern County.

Round Mountain

Sparton Drlg. Co. 1 Hiatt 32-29s-29e
T.D. 2,089 ft. Fishing drill collar and core barrel Possibly in top of Vedder zone. 2,500 ft. south of nearest production in southernmost end of Round Mountain field.

Strand Field

Associated 25-7-E Kern County Land 7-30s-26e
Drilling 8,593 ft. in hard brown shale. This well will be carried down into Rio Bravo and Vedder zones for conclusive test. Stevens zone in this field has not been very productive. Kern County.

Wasco Field

Pacific Western 1 Meyer 7-27s-24e
T.D. 13,150 ft. 7-in. water string cemented 11,343 ft., water 13,135-50 ft., squeezed 25 sacks cement through 39 ft. of 150-mesh perforations in 4¾-in. liner., previously 250 sacks cement had been used in cementing through perf. at 13,108 ft. Will gun-perforate liner at carefully selected intervals. Kern County.

Wheeler Ridge

Richfield 2 Kern County Land 28-11n-20w
Drilling 7,894 ft. in sand and shale. Spot coring. 9⅝-in. casing cemented 4,914 ft. as protective string. Kern County.

SAN JOAQUIN VALLEY WILDCATS

Cantua District

Texas 1 Everding 24-17s-15e
Drilling 8,998 ft. in hard tight gray sand of Domengine. Base Kreyenhagen 8,831 ft. Fresno County.

Northeast Coalinga District

Associated 1 U.S.I. 6-19s-16e
Drilling 8,894 ft. in hard gray Avenal sand. Top Eocene 8,648 ft. Fresno County.

Kreyenhagen District

Continental 1 Kreyenhagen 4-22s-16e
Drilling 9,740 ft. in hard gray sand and siltstone of Eocene age. Top Avenal zone (Eocene) 9,419 ft. Believed below Gatchell interval. Fresno County.

Panoche District

Jergins Trust 1 Cheney 29-14s-13e
T.D. 9,225 ft. P.B. 7,350 ft. Suspended because of inability of company to develop production. Joint test planned southeast of this wildcat by Jergins Trust, Hogan Petroleum Co., Barnsdall Oil Co. and Superior Oil Co.

Buena Vista Hills District

Honolulu 25-P fee 10-32s-24e
Drilling 8,440 ft. in hard tight gray sand with streaks of shale, giving no cuts. Objective Rio Bravo and Vedder zones. Kern County.

Blackwell's Corner District

Seaboard 66-17 Beer 17-26s-19e
Drilling 7,550 ft. in hard shale. Siltstone 7,450 ft. Formation test 7,062-7,449 ft. open 45 minutes recovered 1,350 ft. salt water and small amount of gas. Kern County.

Rio Vista Gas Field

Standard 1 McCormack 2-3n-2e
11¾-in. surface casing cemented 603 ft., drilling in sandy shale at 3,894 ft. Gas zone is objective. Solano County.

Rumsey Hills District

Standard 1 Tippetts 9-12n-3w
Preparing to land surface pipe about 600 ft. Yolo County.

Tejon District

Richfield 1 Tejon Ranch 2-10n-19w
Drilling 7,023 ft. 9⅝-in. casing cemented at 6,968 ft. Has been standing suspended for several weeks. Now drilling ahead at 7,130 ft. in gray sand. No showings to date. ern County.

LOS ANGELES BASIN

R. E. Havenstrite made some additional progress in 1 Lincoln which discovered a new prolific oil and gas field in the Castaic district but still has considerable liner in the hole. This operator killed 1 Lincoln shortly subsequent to completion in order to reduce a high gas-oil ratio but has not yet succeeded in pulling and recovering all of the steel liner. Unless an early recovery is made the remaining amount of liner will be sidetracked and the hole redrilled. This discovery well is the first in the Newhall-Castaic region to show such a large amount of gas and consequently will lead to additional drilling. The principal trouble to date has been the inability of operators to secure favorable leases at reasonable prices. Several additional wildcats have been projected but it will be another 60 days before any new work actually begins. Standard Oil Co., Shell Oil Co., Inc., and Union Oil Co. have considerable acreage spread over this district but are in no hurry to begin development work. Completion of 1 Lincoln has focussed the attention of operators on an area that has lain dormant for a number of years and would probably still be inactive had not Barnsdall Oil Co. and Tide Water Associated Oil Co. moved into the area and discovered new fields. The most significant thing in connection with 1 Lincoln on the Del Valle anticline and in the Rancho San Francisco area is the possibility that there may be another 2,000 ft. of Modelo (upper Miocene) below present production which would mean that both districts should establish high potentials and large recovery.

Montebello Declining

The Montebello field which has been operating under a Superior Court injunction for several months is surely but gradually headed for a decidedly lower level. A number of wells along the south edge of the field have already gone on the beam and the list of pumpers grows larger weekly. The Montebello extension can not even make its allowable at the present time although it could exceed its allotment for a short time if allowed to flow wide open. This would prove ruinous, however, as the gas head would go rapidly. The Montebello extension has been given a daily allotment of 14,482 bbl. and is currently producing about 12,500 bbl. per day. No new work has been started in this district for several months and the three wells put on production at Montebello this week are former upper zone producers that have been deepened to the 8-3 zone. No move has been made to engage in exploratory work below the 8-3 zone but such a move is expected eventually.

LOS ANGELES BASIN COMPLETIONS

Athens Field

So. Cal. Pet. 12-1A Athens 7-3s-13w
Flowed 225 bbl., 32.3-gravity, 1.2 per cent cut, 175,000 cu. ft. gas. 16/64-in. bean. Pressures 360/1,540 lb. T.D. 8,214 ft. P.B. 8,060 ft. 7-in. water string cemented 7,800 ft. 299 ft. of 5½-in. liner 8,060 ft. Perf. 7,761-8,060 ft. 8,057 ft. of 2½-in. tubing. Bottomed in O'Dea zone. Los Angeles County.

Domingues District

Havenstrite, R. E., 4 Larronde 32-3s-13w
Flowed 1,000 bbl., 31.6-gravity, 600,000 cu. ft. gas. 28/64-in. bean. Pressures 500/950 lb. T.D. 7,636 ft. Solid string 7-in. casing landed 7,636 ft. Gun perf. 7,140-85 ft., 7,580-7,000 ft. 7,535 ft. of 2½-in. tubing. Completed in eighth Callender zone. Los Angeles County.

East Coyote Field

Morgan, Geo., 2 Fricke 21-3s-9w
Pumped 150 bbl., 16.1-gravity, 5.5 per cent cut. T.D. 2,088 ft. 6⅝-in. water string cemented 1,982 ft. 109 ft. of 5-in. liner landed 2,088 ft. Perf. 2,014-88 ft. 1,812 ft. of 2⅛-in. tubing. Orange County.

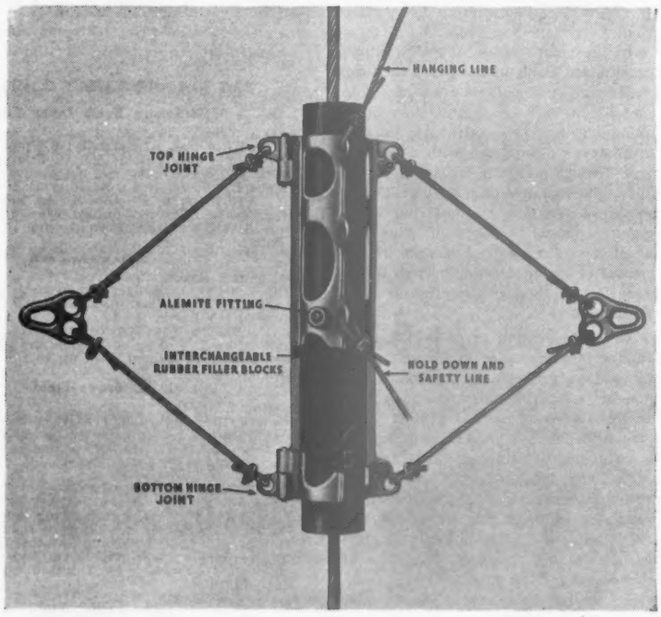
Huntington Beach Field

Termo Co., 6 fee 10-6s-11w
Pumped 300 bbl., 25.6-gravity, T.D. 5,526 ft. 8⅝-in. water string cemented 4,892 ft. 664 ft. of 5¾-in. liner landed 5,526 ft. Perf. 4,901-5,526 ft. 4,508 ft. of 2⅛-in. tubing. Bottomed beneath state tidelands by directional drilling. Orange County.

La Habra District

Security L. & W. 1 Security 9-3s-10w
T.D. 5,165 ft. Drilling stopped in Repetto sand and shale. Top Repetto (lower Pliocene) 3,710 ft. Miocene

Patterson-Ballagh WIRE LINE GUIDES



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was not reached. No showings. Abandoned. Orange County.

Long Beach Field

Magic Oil Co. 1 Wilhelm 29-4s-12w
Pumped 40 bbl., 24.8-gravity, 25 per cent cut. Originally completed in 1934. Redrilled from 610 ft. to 4,298 ft. 6⅝-in. water string cemented 3,768 ft. 600 ft. of 4¾-in. liner 4,298 ft. Los Angeles County.

Montebello Field

Kern Oil 27 Monterey 2-2s-12w
Flowed 870 bbl., 34.8-gravity, 5,068,000 cu. ft. gas. Originally completed in 1938 at 6,279 ft. Deepened from 6,279 ft. to 7,785 ft. and completed in 8-3 zone. 2,400 ft. of 7-in. liner 7,785 ft. Cemented through perf. 7,654 ft. Perf. 7,565-7,785 ft. Gun perf. 7,080-7,380 ft., 7,420-7,785 ft. 7,746 ft. of 2½-in. tubing with packer at 7,394 ft. and 7,555 ft. Los Angeles County.

McVicar & Rood 4 Manz 2-2s-12w
Flowed 142 bbl., 40-gravity, 825,000 cu. ft. gas. Originally completed in Oct. 1939, at 7,619 ft. Deepened through 5¾-in. liner to 8-3 zone at 7,757 ft. 151 ft. of 4-in. liner landed at 7,757 ft. and perf. 7,661-7,757 ft. 7,706 ft. of 2½-in. tubing. Los Angeles County.

Wood-Callahan 1 Todd 2-2s-12w
Flowed 350 bbl., 34.1-gravity, 3 per cent cut. 32/64-in. bean. Pressures 100/380 lb. Originally completed in upper eighth zone at 7,630 ft. in Sept. 1939. Deepened through 5½-in. liner to 7,761 ft. in 8-3 zone. 776 ft. of 4-in. perf. 7,621-7,753 ft. Los Angeles County.

Newhall District

Newhall-Potrero 1 Ferguson 26-4n-17w
T.D. 8,000 ft. Abandoned. Shows 45° dips. Well was still above Miocene when drilling operations suspended and therefore is over 2,500 ft. lower structurally than wells of Barnsdall in Newhall-Potrero field. Los Angeles County.

Wilmington Field

Alvan Oil Co. 1 Pet. Man. 32-4s-13w
Flowed 350 bbl. 15.6-gravity, 15 per cent cut. 25/64-in. bean. T.D. 3,733 ft. Completed in Ranger zone. 8⅝-in. water string cemented 3,023 ft. 745 ft. of 7-in. liner 3,732 ft. Perf. 3,023-3,300 ft., 3,384-3,732 ft. 3,690 ft. of 2½-in. tubing with packer at 2,910 ft. Los Angeles County.

Dunlap Trust 6-W Harbor 5-5s-13w
Pumped 215 bbl., 14.2-gravity, 7 per cent cut. T.D. 3,684 ft. Completed in Ranger zone. 8⅝-in. water string cemented 2,720 ft. 987 ft. of gravel-wrapped liner landed 3,684 ft. and perf. 2,720-70 ft., 2,960-3,065 ft., 3,120-85 ft., 3,320-3,684 ft. Cemented through perf. 2,960 ft. 3,647 ft. of 2½-in. tubing. Los Angeles County.

Golden Circle 1 Harbor 35-4s-13w
Flowed 95 bbl., 15.7-gravity, 10 per cent cut. T.D. 3,490 ft. Completed in Ranger zone. 8⅝-in. water string cemented 3,160 ft. 366 ft. of gravel-wrapped 5⅞-in. liner 3,480 ft. and perf. 3,149-3,450 ft. 3,450 ft. of 2½-in. tubing with packer at 3,124 ft. Los Angeles County.

Laramie Pet. 1 Harbor 32-4s-13w
Flowed 360 bbl., 16.4-gravity, 8 per cent cut. 20/64-in. bean. Pressures 150/100 lb. T.D. 3,720 ft. Completed in Ranger zone. 8⅝-in. water string cemented 3,008 ft. 735 ft. of 5¾-in. liner 3,720 ft. Perf. 3,004-3,300 ft., 3,480-3,720 ft. 2½-in. tubing including 400 ft. of 2-in. landed 3,400 ft. and packer at 2,980 ft. Los Angeles County.

Union Pacific R. R. 28 Edison 3-5s-13w
Flowed 29 bbl., 29.1-gravity, 2,000,000 cu. ft. gas. Pressures 1,050/100 lb. T.D. 3,379 ft. 10¾-in. water string cemented 2,514 ft. 885 ft. of 5-in. gravel-wrapped liner 3,733 ft. Perf. 2,503-2,615 ft., 2,861-2,979 ft., 3,010-3,114 ft, 3,154-3,207 ft., 3,217-75 ft., 3,285-3,373 ft. 2½-in. tubing including 162 ft. of 2-in. hung at 2,636 ft. with lead packer. Located on Terminal Island and whipstocked beneath steam-generating plant of Southern California Edison Co. Flowing from upper and lower Terminal zone. Los Angeles County.

Union Pacific R. R. 154 Harbor 3-5s-13w
Flowed 452 bbl., 29.5-gravity, 1.5 per cent cut. T.D. 3,942 ft. 11¾-in. water string cemented 2,547 ft. 8⅝-in. including 526 ft. of 6⅝-in. 3,935 ft. Perf. 2,922-3,019 ft., 3,049-3,169 ft., 3,185-3,241 ft., 3,576-3,611 ft., 3,631-3,722 ft., 3,742-85 ft., 3,800-48 ft. 3,873-3,935 ft. Cemented through perf. 2,915 ft. and 3,461 ft. Producing from upper and lower Terminal zone. Los Angeles County.

LOS ANGELES BASIN OUTPOSTS

Long Beach Field

Union 19 L.B.C. 30-4s-12w
Drilling in sand and shale at 3,398 ft. 13⅜-in. casing froze at 3,196 ft. and cemented at that point. Los Angeles County.

Rosecrans Field

Universal Consolidated 14 Trust 18-3s-13w
Drilling ahead at 7,950 ft. Deep test. Los Angeles County.

LOS ANGELES BASIN WILDCATS

Castaic Field

Havenstrite, R. E., 1 Lincoln 16-4n-17w
Killed for remedial work to reduce high gas-oil ratio. Los Angeles County.

Dominguez-Gardena District

Wood-Mellon 1 Wood 31-3s-13w
T.D. 7,795 ft. P.B. 2,400 ft. Now redrilling and coring 6,550 ft. Los Angeles County.

Inglewood District

Federal 1 Smith 7-2s-14w
T.D. 7,890 ft. P.B. 7,700 ft. to sidetrick drill collar and core barrel. Now redrilling 7,751 ft. Located in extreme northwestern part of Inglewood structure, has been standing idle for several months. Completion of 1 Sentous of R. R. Bush Oil Co. at 8,760 ft. is responsible for resumption of work on this well. Los Angeles County.

Pico District

Cal-Pico 1 Pico 7-2s-11w
T.D. 7,086 ft. Suspended but not abandoned. Los Angeles County.

COASTAL DISTRICT

Operators holding tideland acreage on which crude-oil production has been developed in both the Ventura and Los Angeles basins have had a bad case of the jitters for the past several years due to the various announcements that come out of Washington periodically. In the coastal district any action along this line would affect Barnsdall Oil Co., Bankline Oil Co., General Petroleum Corp., Honolulu Oil Corp., Caroline Spalding and several others who have developed production at Elwood or Rincon, both of which extend out into the Pacific Ocean beneath what is at present considered state tidelands. Recent dispatches from Washington indicate the possibility that early action will be taken by the federal Government to secure possession of the California tidelands. The Nye bill is still hanging in the House and Senate, but this bill, which involves the tidelands of all states, will probably be held over until the next session of Congress due to the press of business at the present time. This does not, however, prevent the Department of Justice taking independent action. The matter is of serious concern to operators who have spent several million dollars in development work. This will affect many operators in Los Angeles Basin who have drilled wells in the tidelands at Huntington Beach and especially in the Wilmington field.

COASTAL DISTRICT WILDCATS

Cat Canyon District

Union 11 Bell 27-9n-33w
Building road and hauling rig material. This well will be an offset to 1 Los Flores of Standard Oil Co., completed as discovery well in new area last year. Santa Barbara County.

Coal Oil Point District

Bolsa Chica 191-7 Permit 25-4n-29w
Drilling 568 ft., in sand. Santa Barbara County.

Santa Maria District

Union 2-1 Bradley 36-10n-34w
Drilling 958 ft., in sandy shale. This is an outpost well and may prove interesting. Santa Barbara County.

South Mountain District

Cal. Sec. 1 S.M. 17-3n-20w
T.D. 4,500 ft., P.B. 4,250 ft., reaming. An oil sand cored at 4,490-4,500 ft., carried no saturation. Ventura County.

Shiells Canyon District

Field, O. C., 3-B Calumet 3-3n-19w
Drilling 550 ft. 13⅜-in. surface pipe cemented 241 ft.

Tar Springs District

Superior 1 Tar Springs 24-32s-14e
Drilling 5,690 ft., hard shale. No showings recorded to date. Had heavy tar sand high up in hole. San Luis Obispo County.

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Second Kanawha County Test To Clinton Sand Started

By STAFF CORRESPONDENT

PITTSBURGH, Pa., Oct. 7.—In Kanawha County, West Virginia, the Columbian Carbon Co. is deepening the former small Oriskany gas well on the John Price farm in Poca district to the Clinton sand. This test is on the east flank about 5½ miles east of Sissonville. The surface elevation is 876.9 ft. The former total depth of this well was 5,151 ft. and plugged back to 5,100 ft. in the Oriskany sand which had a showing of 60,000 cu. ft. a day before shot. Since the discovery of a commercial volume of gas in the 4 Campbells Creek Coal Co. in Loudin district, the new test to the north will prove of interest. Both are on the west flank of Chestnut Ridge.

During the past week in the lower eastern fields, 30 operations were completed of which 7 were dry holes, 22 gas wells, and 1 small oil producer.

SOUTHWEST PENNSYLVANIA

On Chestnut Ridge in South Union Township, Fayette County, New Penn Development Co., William E Snee et al have made a location for 3 Summit Hotel (Heyn) in the southwest corner of the lease. It will be an offset to Peoples 3 Piedmont Coal Co. now drilling. No. 1 Summit Hotel is being deepened to the Oriskany sand and is now at 6,695 ft. and drilling in Onondaga cherty lime.

Here, Peoples Natural Gas Co. is drilling 2 Piedmont Coal Co. at 5,930 ft. and should reach the Onondaga within the week. This company's 3 Piedmont Coal Co. reached 1,518 ft. but shut down to pull the 10-in. casing. In this well at 820 ft. about 100,000 cu. ft. of gas a day was struck, this was used for power but will now be cased off. In North Union Township, Wasson et al are drilling 2 J. H. Sorg at 4,987 ft.

In Maryland, George L. Yaste reached 2,080 ft. in the test on J. A. Bloch lease on Deep Creek Lake in Garrett County. On the Accident dome in Garrett County, New Penn Development Co. et al lost a bailer in the test on the Humberson farm and is straightening the hole at 6,250 ft.

Armstrong County

Cowanshannock Twp.: Shelocta 1 C. R. Huber, dry, drilled deeper from 1,402 ft. to 3,544 ft. through Bradford sand.
Parks Twp.: T. W. Phillips Gas & Oil Co. 1 France Klingensmith, 73,000 cu. ft. gas, Tiona sand, T.D. 3,703 ft.

Clarion County

Red Bank Twp.: O. H. Culbertson 2 Ed. Bowersox, 73,000 cu. ft. gas, Murraysville, Hundred foot sand, T.D. 1,202 ft.

Fayette County

German Twp.: J. H. Carnell 1 Marion Kurzankuski, 23,000 cu. ft. gas, Fifth sand, T.D. 2,575 ft.

Greene County

Monongahela Twp.: D. E. Mayne et al 1 L. L. Crawford, dry, Injun sand, T.D. 1,390 ft.

Indiana County

Washington Twp.: T. W. Phillips 1 J. M. Johnston, dry, Bradford sand, T.D. 3,338 ft.
White Twp.: T.W. Phillips 1 Ober & Altismus, dry, Bradford, T.D.3,487 ft.

Washington County

Somerset Twp.: Equitable 1 Collin Swagler, 3,600,000 cu. ft. gas, Fourth sand 2,815 ft., gas 2,815 ft., T.D. 2,817 ft.
South Franklin Twp.: South Penn 2 Piedmont Coal Co. (Thompson) drilled deeper, 5 bbl., Fifth sand, T.D. 3,052 ft.

Westmoreland County

Allegheny Twp.: Apollo Gas Co. 1 Sadie J. Anderson, 407,000 cu. ft. gas, Murraysville, T.D. 1,174 ft.
Franklin Twp.: Peoples 1 Henry Swank, 62,000 cu. ft. gas, Speechley, T.D. 3,202 ft.

WEST VIRGINIA

Boone County

Washington dist.: Pond Fork Oil & Gas Co. 6 fee, 1,000,000 cu. ft. gas in Berea, Big lime 2,360-2,560 ft., Big Injun 2,560-90 ft., Beren 3,082-3,117 ft., T.D. 3,117 ft.

Cabell County

McCaomas dist.: W. Va. Gas Corp. 1 H. T. Adkins, 59,400 cu. ft. gas, Big lime 1,289-1,450 ft., Big Injun 1,520-90 ft., Berea 2,105-15 ft., brown shale 2,851-3,175 ft., T.D. 3,212 ft.

Clay County

Buffalo dist.: Pittsburgh and W. V. 7,741 P.M. Summers, dry, Injun sand, T.D. 1,674 ft.

Gilmer County

Glenville dist.: Pittsburgh and W. Va. 7,726 Jennie Hays Powell, 181,000 cu. ft. gas, Salt sand 1,415-70 ft., salt 1,578-1,643 ft., Big lime 1,845-1,912 ft., Big Injun 1,912-2,022 ft., gas 2,020 ft., T.D. 2,078 ft.
Troy dist.: F. G. Bish 1 F. M. Reed, dry, Big Injun 1,580-1,604 ft., T.D. 1,606 ft.

Kanawha County

Loudin dist.: O. H. Bovles 1 Edwin Marmet, 230,000 cu. ft. gas, R.P. 315 lb., Injun sand, T.D. 1,802 ft.

Pleasants County

McKim dist.: W. W. Waterson 1 P. J. Reed, 60,000 cu. ft., Injun sand, T.D. 1,970 ft.

Putnam County

Curry dist.: Shafer Gas Co. 1 C. S. Hollandsworth, 700,000 cu. ft. gas, Big lime 1,430 ft.
Scott dist.: Frazier Oil Co. 1 J. S. Frazier, dry, Salt sand, T.D. 1,064 ft.

Ritchie County

Clay dist.: Frank Finley 1 A. M. Perkins, drilled deeper, dry, plugged back to Injun sand, 37,320 cu. ft. gas, T.D. 2,375 ft.
Grant dist.: A. R. Kelly 2 Clem Ingram, 2,280,000 cu. ft. gas; Maxton sand, T.D. 1,819 ft.
Murphy dist.: McCall Drilling Co. 1 S. W. Edman heirs, 700,000 cu. ft. gas, Injun sand, T.D. 1,883 ft.

(Continued on Page 128)

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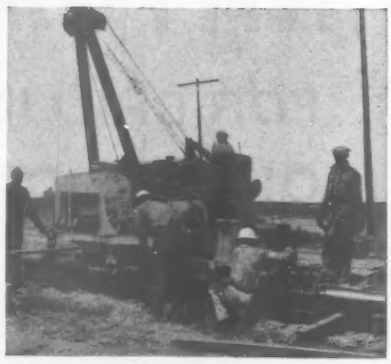

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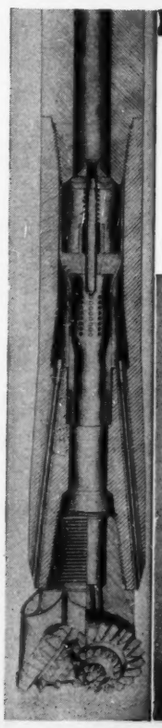

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Well Near Bazzette Field May Open New Fault Line Pool

By R. MARNE SANFORD

DALLAS, Tex., Oct. 7.—Outstanding in eastern Texas during the past week was the gaging of a ½-mile west outpost to the Bazzette field of northeastern Navarro County. Indications were at the close of the week that the producer would be classed as a new fault-line field discovery.

The well is W. W. Lechner 1 E. Trammel, northern corner of an 80-acre tract in the Peter Norton Survey, ½ mile west of production in the Bazzette field which is itself a south extension area for the Flag Lake field of northwestern Henderson County. It flowed 151 bbl. of oil daily through ¼-in. choke and showed about 175,000 cu. ft. of gas to give it a ratio of about 1,100 to 1. Production is from the Woodbine sand drilled with saturation from 2,986-3,015 ft. It is producing through perforated liner from casing set at 2,959 ft. to bottom at 3,015 ft.

The discovery is off the northwest-southeast strike of the many faults in the area and for this reason is believed on a separate fault from the one responsible for production in the field to the east. There are now four small fields in this farthest north production along the Mexia fault system. They are, from north to south along the fault axis, the Rowe and Baker field, the Flag Lake field, the Bazzette field and the new Lechner field. The discovery operator has not staked any new tests for the area, however, he plans to drill several more wells in the near future in an attempt to determine the extent of the fault which has been found.

New Wildcats

The firm of R. H. & W. Oil Co. has been formed for the drilling of a new wildcat in Anderson County projected to the 5,000-ft. Woodbine sand. It is 1 Saunders in the eastern part of the townsite of Frankston in the northeast part of Anderson County. Considerable lease play is resulting from the test, which has already spudded, Humble Oil & Refining Co. reports to have added considerable acreage to its 12,000-acre block in the area.

In Van Zandt County T. G. Shaw, Fort Worth, is reported preparing to start his wildcat announced last month. The location has been changed from 1 D. T. Riley, 270-acre tract, to the High & West 100-acre tract in the Leander Smith Survey. It is on a block of 8,562 acres taken out of an original block of 20,000 acres assembled by Hickok & Reynolds of Cisco and R. E. Lee of Dallas some time ago. Projected as a deep test, it will be drilled with rotary to test the Woodbine sand, the Rodessa section and the lower Glen Rose and possibly the Travis Peak.

Indications were seen during the week that the recently staked wildcat in Fannin County would be started immediately. It is Damon Oil 1 A. L. Chaffin, projected 5,000-ft. test 4 miles northeast of Bonham and on a 100-acre tract in the J. Ketchum Survey. The location has been cleared and materials were due to be moved in this week.

EASTERN TEXAS COMPLETIONS

Gregg County

East Texas field, Longview area: Ambrose 9 Jones, 300 bbl. in 3 hr., 2½-in. tubing, 3,570-3,604 ft.
W. D. Ambrose 11 Jones, 350 bbl. in 3½ hr., 2½-in. tubing, 3,562-3,604 ft.
Magnolia 29 R. B. White, 30 bbl. in 15 min., 2½-in. tubing, 3,503-20 ft.
East Texas field, Kilgore area: American Liberty Oil 26 Sabine River, 65 bbl. in 2½ hr., 3,525-27 ft.
Grace & Schulman 3 E. L. Walker, 30 bbl. hourly, 3,738-39 ft.
Shell 35-A B. F. Laird, 70 bbl. hourly through perf. from 3,516-26 ft.

Rusk County

East Texas field, Joiner area: Fain 9-A Wiley, 53 bbl. in 6 hr., swabbing, 3,601-3,729 ft.

Upshur County

Wildcat: A. C. McGahey 1 Ludie Turner, SE cor. 200-acre tract in A. Butler Sur., top Pecan Gap 2,394 ft., base Pecan Gap 2,970 ft., top Blossom sand 3,200 ft., base Austin chalk 3,850 ft., top Woodbine sand 3,940 ft., dry at total depth 4,211 ft.

EASTERN TEXAS DRILLING REPORT

Anderson County

R. H. & W. Oil 1 Saunders, 17-acre tract in Joseph Ferguson Sur., in Frankston townsite, 5,000-ft. test, spudding.
Wright Drlg. Co. 1 Hart & Maberry, NE cor. J. W. Box Sur., S.D. 10 ft.

Delta County

Partin & Skinner 1 Lomar, T. Jones Sur., S.D. 60 ft.

Ellis County

W. E. Butler 1 A. M. Sims, 1 mi. SW Bristol on 8,000-acre block, S.D. 4,055 ft.

Falls County

Joy Carruth 1 Westbrook, Manchaca Sur., 4½ mi. NE of Chilton, set 10-in. at 42 ft., S.D. 735 ft.

Fannin County

H. T. Fleming 1 Welch, E. J. Allen Sur., 4 mi. NW Honey Grove, S.D. 90 ft.
Damon Oil 1 A. L. Chaffin, SW cor. 85-acre tract, J. Ketcham Sur., 4 mi. NE Bonham, location cleared, prepare move in materials.

Kaufman County

T. G. Shaw, Tr. 1 Agnes Wynne, B. S. Newman Sur., 8 mi. E Kaufman, lower Trinity test, base Massive 6,255 ft., T.D. 6,454 ft., C.O. to 5,000 ft., prepare resume fishing job.

Leon County

H. W. Hawker 1 C. H. Mills, M. Copeland Sur., 2½ mi. E of Normangee, top Midway 3,850 ft., top Wilcox 5,470-5,770 ft., running casing 5,904 ft., T.D.

Limestone County

Frank Bryan 1 F. Bevill, J. H. Murray Sur., 1 mi. SW Horn Hill, top Georgetown lime 2,897 ft., drilling 3,641 ft.

(Continued on Page 126)

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Agents in Principal Cities

By
DAL DALRYMPLE

Find Second Pay at Falls City; Nebraska Activity Increases

ST. JOSEPH, Mo., Oct. 7.—A second producing horizon seemed assured for the Falls City, Nebraska, pool as operators prepared to test showings in Misener sand at Harry Harper 2 Sibbernsen, SE NW NW 20-1n-16e. This development and announcements of oil-processing plants for the Richardson County, Nebraska, field feature current developments in the Forest City basin.

R. D. Swan, of Joliet, Ill., president of the Mid-States Refining Co., announced he had purchased a 2,500-bbl. refinery at Neosho Falls, Kans., and would move it at once to Falls City, where headquarters for his company will be established. Robert Druesedow, of Omaha, and Curtis Flint, of California, announced they would build a 2,000-bbl. skimming plant at Falls City. J. G. Ranger, of St. Joseph; H. H. Juston and J. E. Windle, of Salem, Neb.; John R. Cooper, of Humboldt, Neb.; and John Peters, of Centralia, Ill., filed articles of incorporation for a 2,000-bbl. skimming plant at Salem, Richardson County. Construction was to start at once. Bell Pipe Line Co. is going ahead with work on its gathering system at Falls City. About 2,500 bbl. of oil daily is being taken from the field.

Harper 2 Sibbernsen topped Misener sand at 2,216 ft., set pipe and oil rose in the hole at 200 ft. an hour naturally. If the oil proves to be from the Misener zone, it will open a new producing horizon for the field, other production being from Hunton lime.

Several new producers are near completion. Pawnee Royalty Co. 1 Sandrock, NW SE NW 20-1n-16e, was flowing approximately 50 bbl. daily without acid from Hunton lime topped at 2,214 ft. It is an east offset to E. J. Shaffer 1 Sandrock. Pawnee 2 Sandrock, NE SE NW 20-1n-16e, topped Hunton at 2,209 ft., and oil started rising in the hole when 4 ft. of lime was drilled. Pawnee 3 Sandrock, NW SE NW 20-1n-16e, is a location.

Skelly Oil Co. 2 Davisson, NE NW NE 20-1n-16e, topped Hunton at 2,256 ft. and cored 3 ft. of pay. It is a northeast offset to company's 1 Davisson. Skelly spudded No. 2 Wallraff, C SW SE 20-1n-16e, and staked location for No. 1 Prichard, C SE NE 29-1n-16e. Kirk & Ross, of Wichita, started moving rotary tools to 1 Prichard, NW SE SE 20-1n-16e. Black Gold Operating Co. dug cellar and pits at 1 Conklin, NE NE 30-1n-16e.

NEBRASKA WILDCATS

Nemaha County

Frank Engles et al 1 Wheeler....NE NE NE 9-4n-14e
Set 8-in. 1,667 ft., drilling.
Black Gold 1 Allen.....C SE SW 16-4n-14e
Rigging up rotary.
Clampitt et al 1 Lambert.....NE NE SW 26-4n-15e
Cement 10-in. 60 ft., drilling below 1,050 ft.
Schrock et al 1 Rogge.....NW NW NW 17-5n-13e
Hunton 2,300 ft., small show of oil 2,464 ft., 7-in. 2,463 ft., T.D. 2,472 ft., bailed water, S.D.
Bow & Arrow Oil 1 Shriefer..N½ NE SW 20-5n-14e
Lansing 885 ft., S.D. 1,289 ft.
Jackson & Rust et al 1 Magor...C NE NE 15-5n-15e
Mississippi 2,198 ft., Kinderhook 2,416 ft., Hunton 2,666 ft., Viola 3,484-3,501 ft., T.D., dry.
Bow & Arrow Oil 1 Wrightman W½ SW NW 36-6n-14e
S.D. 550 ft.

Richardson County

Uhri Oil Corp. 1 Stauffer .... SW SW NE 22-1n-13e
Set 10-in. 1,400 ft., cleaning out.
Uhri Oil Corp. 1-A Ogle.....NW SE SE 9-1n-14e
T.D. 2,260 ft., Hunton or Misener about 2,255 ft., showing oil, water coming from hole in casing, pumping water.
M. J. Lewis et al 1 Wittwer..NW NW NE 22-1n-14e
Hunton 2,350-2,410 ft., T.D., dry.
Forest City Basin Synd. 1 Windle-Dodge.....
SE NE SE 3-1n-15e
Lansing 895 ft., base K. C. 1,225 ft., 8-in. 1,615 ft., 6-in. 2,160 ft., drilling below 2,200 ft.
R. M. McIntyre et al 1 Hough-Hill..C SE SW 6-1n-16e
Spudded.
E. V. Jackson et al 1 Eickhoff....C NE NW 4-2n-16e
Drilling.
Trickett & Atkins 1 Gossic....NW NW NW 33-2n-21w
Rigging rotary.
I. T. I. O. 1 Schaible-Kuttler.....C NE SW 29-3n-16e
Mississippi 2,073 ft., Huntin 2,433-53 ft., T.D., acidized 4,500 gal., after last acid treatment with 3,000 gal., flowed 2½ bbl. oil an hr. for 3 hr., swabbed 326 bbl. in 24 hr., pumped 372 bbl., cutting 2 per cent basic sediment and water, in 30 hr.; estimated pumping 325 bbl. oil daily, completed.
W. H. Martgan et al 1 Smith....C NW NW 31-3n-16e
Location.

Otoe County

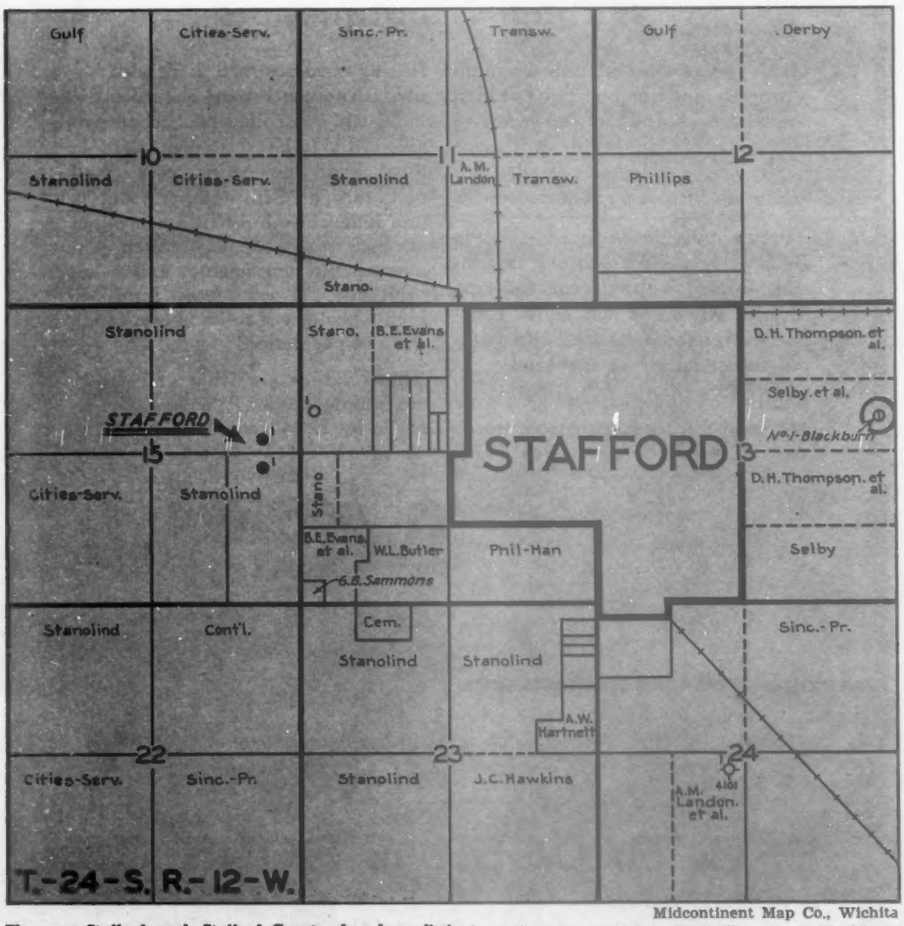
H. A. Risk et al 1 McCord....NW SW SW 15-8n-14e
S.D. 724 ft.

Activity in Missouri

In the Missouri sector of the basin, A. & W. Oil Co. of Chicago announced it would drill 1 Pickett, SE 13-57-31w, DeKalb County, with portable rotary. The company is operated by W. F. Wilder and G. Jack Alders, who have been active in Illinois and East Texas fields. American Oil & Gas Corp. 1 Thompson, SW SW 20-58-31w, De Kalb County, found Kinderhook shale at 1,533 ft. and was looking for Hunton lime.

A test is being drilled in eastern Bates County, southwest of Appleton City, by Clarence C. Browning at 1 Culver, C 18-39n-29w. An 84-ft. standard rig is being used. Hole has been drilled to 285 ft., on top of Mississippi lime, and operators were preparing to run casing to shut off water at 145 ft. Operator expects to drill to the granite unless production is found in upper zones. Nearest production is in the Nevada pool to the southwest.

In the Kansas sector of the Forest City basin, W. M. Stark 1 Ragan, NW NE 4-10-20, Jefferson County, was dry at 1,665 ft. Dan McLaughlin 1 Ragan, C NW NW 3-10-20, Leavenworth County, was dry but total depth was not ascertained. McLaughlin is starting another well in 5-10-20, Jefferson County.



Midcontinent Map Co., Wichita

The new Stafford pool, Stafford County, has been limited on the east at Selby Oil & Gas Co. 1 Blackburn, 13-24-12w, east of the town of Stafford. It has a hole full of water in Viola lime at 3,863-82 ft.

OPERATIONS IN KANSAS

A new Arbuckle lime pool appeared to have been opened in western Rice County at C. L. Carlock 1 Karber, W½ NW NW 7-19-10w, about 1 mile east of the Rick pool and thought to be on a separate subsurface high. It found saturated Arbuckle lime at 3,340-44 ft., and drilling was stopped to run 5½-in. casing. Location is on subsurface structure mapped by Delmer L. Powers, Wichita geologist. The Stanolind, Magnolia, Sinclair Prairie and Cities Service companies have nearby acreage.

The prospective discovery east of the town of Stafford and 2 miles east of the recently discovered pool of that name has a hole full of water and will be plugged, operators announced. It is Selby Oil & Gas Co. 1 Blackburn, E½ SE NE 13-24-12w. It topped Viola lime at 3,863 ft. and water intruded at 3,882 ft., total depth.

The North Greenvale pool discovery was completed at Jones & Shelburne 1 Lewis, SW SW NE 28-14-12w, Russell County. It made potential of 1,463 bbl. daily, pumping, from Howard lime pay at 2,317-2,329 ft.

KANSAS COMPLETIONS

Barber County

Whelan pool: C. L. McMahon 1 Whelan, C NW NW 29-31-11w, Mississippi lime 4,342 ft., T.D. 4,400 ft., dry.

Barton County

Feltes area: Marshall 1 Weber, CNL NW SE 14-16-12w, Quartzite 3,371 ft., T.D. 3,386 ft., P.B. to 3,380 ft., acidized 1,000 gal., pumped 10 bbl.
Prusa field: Derby 3 Esfeld, NW SW NW 29-16-11w, sand 3,292 ft., T.D. 3,294 ft., 4-in. 3,293 ft., acidized 7,000 gal., pumped 68 bbl. of oil and 6 bbl. of water.
Derby 4 Esfeld, SW NW NW 29-16-11w, set 4-in. on top of sand at 3,324 ft., T.D. 3,333 ft., potential 214 bbl.

Silica field: Gulf 7 Zahorsky, CWL SE SE 14-20-11w, Arbuckle 3,263 ft., T.D. 3,355 ft., 5-in. on bottom, perf. 3,309-11 ft., acidized 1,000 gal., swabbed 227 bbl. in 3 hrs., potential 2,280 bbl., calculated, with 180 bbl. of water.

Hollow et al 4 Kowalsky, CNL NE NE 18-20-11w, Arbuckle 3,297 ft., 5-in. 3,298 ft., T.D. 3,307 ft., swabbed 43 bbl. in 2 hrs., potential 3,000 bbl., calculated.

Estimated Daily Production

Estimated daily production for Kansas for the week ended October 5, and for the preceding week, was as follows:

	Barrels	
	Oct. 5	Sept. 28
Oxford City	700	700
Burrton	7,100	8,350
Ritz-Canton	3,800	4,150
Graber	3,250	2,750
Hollow-Nikkel	1,350	1,400
Lerado	900	1,150
Voshell	1,700	1,650
Wellington	1,550	1,750
Ellsworth County:		
Lorraine	1,550	1,600
Other pools	4,625	5,100
Rice-Barton counties:		
Bloomer	4,750	5,900
Chase	4,450	5,300
Geneseo	2,950	3,600
Raymond	1,000	650
Silica	14,550	16,550
Keesling	1,100	550
Wherry	3,100	3,700
Miscellaneous Barton	5,960	5,900
Trapp district	17,800	15,400
Balance Russell County	22,450	20,100
Sedgwick County	3,150	3,250
Ellis County:		
Bemis	5,150	8,650
Burnett	4,000	5,850
Miscellaneous	2,345	250
Kingman County	860	950
Stafford County	12,170	11,025
Greenwood County	8,350	8,750
El Dorado	7,100	7,400
Other fields	43,390	41,175
Total Kansas	191,150	193,550

Cowley County

Rock pool: E. B. Shawver 3 Davis, SE NW NE 21-30-4, set 7-in. on top of Bartlesville 2,777 ft., T.D. 2,812 ft., P.B. to 2,808 ft., potential 377 bbl., pumping.

Udall area: Sage et al 1 Carlson, CWL SW SW 21-30-3, Arbuckle 3,027 ft., T.D. 3,029 ft., dry.

Miscellaneous: C. O. Buckles 1 Guthrie, NW cor. Lot 13, 30-33-8, Kansas City 2,130 ft., T.D. 2,325 ft., dry.

Ellis County

Burnett pool: Phillips Petroleum 7 Peavey, CNL SE SE 13-11-18w, Arbuckle 3,382 ft., T.D. 3,287 ft., 5-in. on top of Arbuckle, potential 3,000 bbl., calculated.

Ellsworth County

Stoltenberg district: I.T.I.O. 3 Boye, CEL SW NW 16-16-10w, Arbuckle and 7-in. 3,327 ft., T.D. 3,340 ft., acidized 1,000 gal., potential 3,000 bbl., calculated.

Stanolind 7-C Stoltenberg, CEL SE SW 22-16-10w, Arbuckle and 5-in. 3,296 ft., T.D. 3,306 ft., potental 2,700 bbl., calculated, with 300 bbl. of water.

Atlantic 3-A Stoltenberg, CSL NE SE 27-16-10w, Arbuckle and 5-in. 3,287 ft., T.D. 3,291 ft., potential 3,000 bbl., calculated.

Stanolind and Gulf 4-D Stoltenberg, CNL SW NE 27-16-10w, Arbuckle 3,298 ft., T.D. 3,319 ft., P.B. to 3,311 ft., 5-in. 3,299 ft., potential 283 bbl. of oil, with 16 bbl. of water.

Lauck & Moncrief 5 Ehler, CEL NW 35-16-10w, Arbuckle and 7-in. 3,298 ft., T.D. 3,306 ft., potential 3,000 bbl., calculated.

Claude Drilling 1 Boldt, CEL SE SW 21-16-10w, old well cleaned out to 3,339 ft., T.D., pumped 29 bbl. oil and 43 bbl. water.

McPherson County

Bornholdt field: Transwestern 2 Peterson, CWL SW SE 18-20-5w, chat 3,296 ft., T.D. 3,335 ft., 7-in. 3,297 ft., potential 3,000 bbl., calculated.

Cities Service 2 Nyquist, CSL SE NW 18-20-5w, chat 3,280 ft., 5-in. 3,283 ft., T.D. 3,328 ft., flowed 72 bbl. oil in 30 minutes, potential 3,000 bbl., calculated.

Ohio 3 Lindquist, CSL NW SE 18-20-5w, chat 3,283 ft., 5-in. 3,286 ft., T.D. 3,323 ft., potential 233 bbl., flowing.

Continental 6 Mattson, CSL N½ NW 31-20-5w, chat 3,305 ft., 6-in. 3,307 ft., T.D. 3,370 ft., P.B. to 3,347 ft., potential 307 bbl. of oil, with 9 bbl. of water.

Roxbury pool: Westgate-Greenland 2 Union, CWL SW NE 18-17-1w, set 5-in. on top of chat 2,661 ft., T.D. 2,676 ft., acidized 2,000 gal., potential 1,791 bbl., pumping.

Marion County

Lost Springs area: Timm et al 3 Schick, NW NW NW 28-17-4, Mississippi lime 2,380 ft., T.D. 2,425 ft., 6-in. 2,389 ft., potential 150 bbl., cutting 30 per cent water.

Lost Springs 7 Merilott, CSL N½ N½ 23-17-4, chat 2,312 ft., oil pay 2,345-52 ft., T.D., 5-in. 2,315 ft., pumped 40 bbl. oil and 35 bbl. water.

Reno County

Burrton field: Colorado Petroleum 3 Sabine, SE NE NE 12-23-4w, chat 3,255 ft., 4-in. 3,320 ft., oil pay 3,375 ft., T.D. 3,393 ft., acidized 1,000 gal., est. 300 bbl. oil daily, pumping.

Rice County

Campbell pool: Cities Service et al 6 DeWitt, CWL E½ NE 33-19-9w, Arbuckle 3,174 ft., 5-in. 3,175 ft., T.D. 3,209 ft., acidized 5,000 gal., potential 1,095 bbl., calculated.

Chase field: McPherson Drilling et al 1 Campbell, SE SE SE 8-19-9w, Arbuckle and 5-in. 3,207 ft., T.D. 3,220 ft., acidized 4,000 gal., potential 2,005 bbl., calculated.

Rooks County

Laton pool: Krueger 1 Luhrman, CSL NE NW 10-9-16w, Lansing 3,179 ft., T.D. 3,226 ft., acidized 5,000 gal., potential 1,899 bbl.

Russell County

Hall-Gurney field: Central Petroleum 4 Boxberger, CNL NE SE 26-14-14w, Lansing 2,897 ft., oil pay 2,922 ft., T.D. 3,000 ft., 6-in. 2,922 ft., acidized 8,000 gal., potential 2,553 bbl., pumping.

Hartman & Blair 3 Boxberger, CSL SE NE 26-14-14w, old well deepened from 2,948 ft. to pay 2,975-81 ft., T.D. 3,006 ft., recompleted for old potential of 2,172 bbl., pumping and flowing.

Armer et al 2-A Holl, CWL SE SW 36-14-15w, basal sand 3,205 ft., 5-in. 3,209 ft., T.D. 3,224 ft., temporary potential 83 bbl., swabbing, cutting 30 per cent water.

Armer et al 1-B Holl, CWL SW SE 36-14-15w, basal sand and 5-in. 3,211 ft., T.D. 3,220 ft., potential 209 bbl. of oil, pumping, with 30 bbl. of water.

Sedgwick County

Wildcat: Scott-Carey 1 Benscheidt, CSL SW NW 22-27n-1w, T.D. 750 ft., temporarily S.D.

Stafford County

Zenith field: E. H. Moore 2 Stewart, CSL SE SW 12-24-11w, old well deepened from 3,765 ft. to 3,809 ft., acidized 3,000 gal., potential 3,000 bbl., calculated.

Stanolind 2 McComb, CSL SW SW 12-24-11w, old well deepened from 3,761 ft. to Viola 3,762 ft., T.D. 3,811 ft., acidized 3,000 gal., potential 810 bbl.

Getty 1 Johnson, CEL NE SE 3-24-11w, Simpson sand 3,825 ft., T.D. 3,833 ft., P.B. to 3,770 ft., acidized 10,000 gal., swabbed 51 bbl. in 12 hrs., potential 164 bbl., pumping.

WILDCAT REPORTS

Barber County

Derby et al 1 Hancock ..... C SE SE 10-32-12w

Simpson 4,679 ft., Arbuckle 4,776-4,840 ft., set 4½-in. casing 4,800 ft.

Marion County

H-L-N Oil 1 Shields ..... C S½ SE SE 19-17-4
Drilling 1,360 ft.

McPherson County

F. S. Williams et al 1 Henne ..... SW SW NE 21-17-1w
Underreaming 10-in. casing 1,570 ft.

Nemaha County

A. C. Bumpus 1 Achten ..... CSL SE NW 12-4-14
Set 10-in. casing 1,196 ft., drilling 1,315 ft.

Rice County

C. L. Carlock 1 Karber ..... C W½ NW NW 7-19-10w
Lansing 3,027 ft., show oil 3,232 ft., base Kansas City 3,290 ft., good saturation in Arbuckle 3,343-46 ft., T.D.

Rooks County

Gulf 1 Bruton ..... CEL SE NE 23-8-17w
Drilling 1,950 ft.

Russell County

Jones & Shelburn 1 Lewis ..... SW SW NE 28-14-12w
Top pay 2,321-25 ft., pumped 468 bbl. in 8 hr.

Pryor & Lockhart 1 Borrell ..... C N½ NE SE 3-15-11w
Fort Riley 1,487 ft., fishing 2,645 ft.

Stafford County

Shelby Oil & Gas 1 Blackburn ... CEL SE NE 13-24-12w
Viola 3,859 ft., show oil, set 5-in. casing 3,885 ft., T.D.

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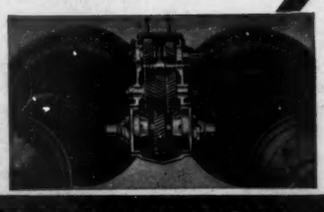

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Among the Drilling

CHARLES D. HAGERTY, contractor in West Central Texas, has moved in new motor and is preparing to resume work at a long shutdown test for Natural Resources Corp. in Concho County, West Central Texas. The wildcat, No. 1 R. G. Armor, its 69-acre drill site, and four tracts of 80 acres each around the test, have been assigned to Lloyd E. Cox, Dallas, for the completion of the test to its contract depth of 3,250 ft. Drilling was halted in December 1939 at a total depth of 1,565 ft. with 10-in. casing set at 1,185 ft. The location is 1,315 ft. from the south and 330 ft. from the west lines of Section 105, T.&N.O. Survey, 5 miles northeast of Eden. The assignment of acreage to Mr. Cox was out of an original block of 6,400 acres.

GWYNN & OVERBY, contractors of Wichita Falls, Tex., have received from Wrightsman Oil Co., Fort Worth, contract for a new test in the recently discovered Mathis field in Jack County, North Central Texas. It will be Wrightsman's No. 1 W. R. Mathis, on a 53-acre tract about ¼ mile south of the 2,900-ft. discovery well by Cooper and Steed early last winter. Production in the field is from the Bryson sand which produces in the large Bryson field just about 2 miles to the west. Materials are being moved in and spudding is scheduled for early next week.

ROWAN Drilling Co., Fort Worth, Tex., together with Southland Royalty Co., also of Fort Worth, is jointly drilling an east outpost to the Knight field in Young County, Texas. It is No. 1 Nora Sloan, Manes Survey, and was last reported below 2,500 ft.

DAVIDSON Drilling Co., Fort Worth, Tex., contractor on the Ventura Oil Co.'s No. 1 H. L. Lowe, deep wildcat in Lea County, New Mexico, is preparing to drill 300 ft. deeper below its present depth of 6,000 ft. Several major companies including Shell Oil Co., Inc., Atlantic Refining Co., and others, assured the contractor $5,000 for the deepening operation. Being one of the deepest tests drilled in Lea County, it is located 660 ft. from the south and 1,980 ft. from the east lines of Section 26-13s-37e.

ROBERTS Drilling Co., Abilene, Tex., has contracted the Bradford & Robertson and Roberts & Hunter's No. 1 Coody, recent wildcat location in Haskell County, West Central Texas, to the Palo Pinto lime or 3,500 ft. The No. 1 Coody is 1,400 ft. out of the southwest corner of the N. Haggard Survey, 12 miles east of Haskell. Two new Palo Pinto lime areas have been opened recently in northern Jones County immediately to the south. The new test will be drilled with rotary and is scheduled for spudding this week.

W. V. BOWLES, Houston, Tex., is moving in a rig to Acadia Parish, coastal Louisiana, for W. B. Hamilton's No. 1 Amy, a projected 8,000-ft. wildcat located about 3 miles east of the town of Eunice in Section 39-6s-1e.

HARRY L. EDWARDS Drilling Co., Houston, Tex., is preparing to test No. 1 H. H. Hlavaty, drilled for L. P. Luse on the east flank of the Esperson dome, Liberty County, Texas. Offshore from Aransas County and on the Mud Island prospect, drilling was started on Gulf Board's No. 1 State. Two other operations are reported in Harris County, Texas, for Cities Service Oil Co. and at the Anse La Butte field, St. Martin Parish, Louisiana, for W. L. Goldston.

ALLEN & MORRIS, San Antonio, Tex., drilling for Shield Oil Co., has halted operation on No. 1 Gallagher in the Shield field, Nueces County, Texas. In Brooks County one rig is operating for the Standard Oil Co. of Texas, while in Victoria County, Texas, Humble Oil & Refining Co.'s No. 2 Nave, in the East McFaddin area, was spudded.

RUTHERFORD Drilling Co., Houston, Tex., extended production of the Lolita field, Jackson County, Texas, into the Lolita townsite with the completion of its joint test with Shield Oil & Gas Co., and the rig is scheduled to be moved to a new location.

HOUSH & THOMPSON Drilling Co., Houston, Tex., is starting a new operation in the Eola field, Avoyelles Parish, Louisiana, for Gulf Refining Co. The well is located on the M. S. Moulire lease.

CRON & GRACEY Drilling Corp. has abandoned Shell Oil Co., Inc.'s No. 1 State in Jefferson Parish, coastal Louisiana, at a depth of 12,000 ft., and in the new Schooner field, Vermilion Parish, drilling was started on a second test for Union Oil Co. of California.

HENSHAW BROTHERS are preparing to test their No. 1 Grossman, a prospective pool opener located about

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2½ miles southeast of the Orange Grove townsite in Jim Wells County, Southwest Texas. Well was drilled to a depth of approximately 6,000 ft., and a production test is scheduled to be made in sand at about 5,100 ft., where a drill-stem test recovered pipe-line oil.

WARREN & BRADSHAW Drilling Co., Tulsa, is starting a third test in the new West Stillwater pool of Oklahoma, offsetting the discovery well on the southeast. Location is east of the second producer in the pool, which checked 33 ft. higher on Hunton lime, producing horizon, than the discovery.

HARRY HARPER, former Odessa, Tex., contractor, who drilled the discovery well in the Falls City, Nebraska, pool for Pawnee Royalty Co., apparently has given that field a new producing horizon at his own No. 2 Sibbernsen, Section 20-1n-16e. It found saturation in Misener sand and may be completed as a Misener producer. Other production in the pool is from Hunton lime.

PARKER Drilling Co., Tulsa, which has the contract for Gulf Oil Corp.'s deep wildcat test in Woods County, northwestern Oklahoma, is making fast time and was drilling below 2,000 ft.

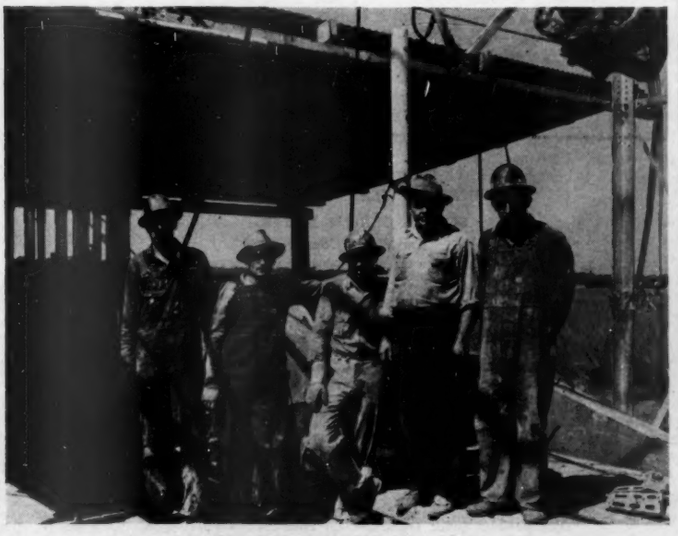
WASTEKA Drilling Co., Oklahoma City, Okla., had rigged up and was waiting on additional tools before starting drilling at Ray Stephens. Inc.'s No. 1 Lankford, Section 6-6-9w, wildcat between the Cement field and Anadarko, Okla. Contract depth is 8,000 ft.

W. B. OMOHUNDRO, drilling contractor and operator of Wichita Falls, Tex., has abandoned his wildcat test 5 miles west of Bellevue in Clay County, North Texas. The test, his No. 1 Ida Wynn, in Section 2, Gowan Survey, was carried to a total depth of 6,654 ft. in the Ellenburger. Last week he staked location for his fourth well in the Seay pool of western Montague County, North Texas, which the Omohundro No. 1 Seay opened earlier this year. Location of the No. 4 Seay is 302 ft. north of the discovery, in Section 32, Block 4, H.&T.C.R.R. Survey.

HOLLOW Drilling Co., Wichita, Kans., and associates completed a big oil producer in the Silica field, Barton County, Kansas, last week. It was given maximum allowable potential of 3,000 bbl., producing from Arbuckle pay at 3,297-3,307 ft.

GWIN Drilling Co., headed by J. H. Gwin, has moved headquarters from Centralia, Ill., to Evansville, Ind.

BIG CHIEF Drilling Co., Oklahoma City, found a new gas horizon in the Cement field, Caddo County, Oklahoma, at Carl Larkins and others' test on Block 26 of the townsite. When the deep zones failed to pay off, pipe was perforated at around 3,520 ft. and the well cleaned itself, production being estimated at 20,000,000 cu. ft. daily.



Day tour of J. I. Roberts Drilling Co., Shreveport, La., on location in the Port Neches field, Orange County, Gulf Coast Texas, for Phillips Petroleum Co.: Paul Lawrence, E. E. Lester, driller, T. I. Berry, W. L. Sandel and Sid Laughlin

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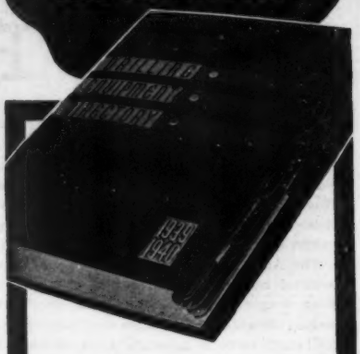

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Agua Dulce Gas Field Gets First Oil Production

By
F. L. SINGLETON

CORPUS CHRISTI, Tex., Oct. 7.—The opening of the first crude-oil production in the Agua Dulce gas field, Nueces County, a Pettus sand discovery in Jim Hogg County, and important extensions to proven fields marked up an interesting week of developments in the Southwest Texas district.

The Agua Dulce field, Nueces County, generally recognized as one of the largest gas reservoirs in the state, was assured its first crude production as Richardson Petroleum Co. recovered pipe-line oil on three drill-stem tests in separate sand sections in 2 McCoy, located on the southeast flank of the structure. Casing was perforated for the first test at 6,890-96 ft. and 820 ft. of oil was recovered, and working pressure built up to 500 lb. The next test was made at 6,815-21 ft. and 1,260 ft. of oil was recovered on a 15-minute drill-stem test. The perforations were cemented off, and another test at 6,430-36 ft. tested 350 lb. working pressure and recovered 546 ft. of oil. Preparations were being made to complete in one of the above sands after sulfur water was recovered at 6,022-28 ft.

Agua Dulce is the second gas field in Nueces County to be converted into an oil field by flank drilling, and the showing of the present well is expected to result in a large-scale drilling program. The field is producing gas and distillate from numerous horizons which is being taken by several recycling plants recently constructed in the field.

On the east flank of the Stratton field, Nueces County, S. E. W. Oil Corp. 2 Union Central Life Insurance Co. extended oil production on the east flank several hundred feet as the well flowed oil on a 10-minute drill-stem test at 6,516-42 ft. and recovered 1,120 ft. of oil. The well is coring ahead for the 6,600-ft. horizon. The well opens a new horizon for the field, and indicates a building up of sand lenses to the east as the 6,500-ft. sand in 1 Union Central Life Insurance Co. failed to show commercially when tested.

Another producer for the East Flour Bluff field Nueces County was indicated as Humble Oil & Refining Co. prepared to test 3-B State. Bottomed at 6,831 ft., 5½-in. casing was cemented on bottom to test at 6,768-6,831 ft., where broken sand and shale showing oil and gas was logged.

In the same county and located about 4,500 ft. northeast of the Shield field, Shield Oil Co. et al 1 Allen is apparently a failure as salt-water sand was cored in the discovery pay at 6,627-41 ft., and the well is expected to be abandoned at its present depth of 6,708 ft. Stanolind 1 Ocker, a north outpost, is testing through perforated casing at 6,614-17 ft. and the well is reported to be flowing 4 bbl. of fluid per hour through a ⅛-in. choke, varying from clean oil to 100 per cent salt water. Tubing pressure was 700 lb. and casing pressure 1,000 lb. The well may be killed and the hole plugged back to test at 3,026-32 ft., where sidewall cores recovered sand with an oil odor.

Henshaw Brothers 1 Grossman, drilled as a mystery well, and located southeast of Orange Grove, Jim Wells County, is reported to be preparing to test after cementing casing at 5,200 ft. Information released by the company shows that a 15-minute drill-stem test at 5,115-36 ft. tested 58 lb. working pressure and recovered 1,200 ft. of 29.4-gravity oil. The well was drilled to a contract depth of 6,000 ft., and sand with a gas odor, cored at 5,719-29 ft., is reported to have been tested, but the results were not available.

Guy Davis et al opened a new Pettus sand discovery in Jim Hogg County as 1 Marrs McLean flowed 3½ bbl. of 24.3-gravity oil per hour through a ¼-in. choke from perforated casing at 2,795-2,810 ft. The sand section was topped at 2,694 ft. and the well was drilled to a total depth of 3,152 ft. Five and one-half inch casing was cemented at 2,873 ft. Location is in the Las Animas grant, Share 3, Section 4.

A major extension was marked up for the Rincon field, Starr County, as W. R. Davis & Co., Inc., extended production approximately 1 mile southeast with the completion of 17-A Slick estate. Drilled to a total depth of 5,245 ft., 7-in. casing was cemented at 4,430 ft. and the well was completed through perforated casing at 3,958-78 ft. for an initial production of 289 bbl. per day through a ¼-in. choke. Tubing pressure was 650 lb. casing pressure 1,175 lb. Location is in Survey 528, about 3,000 ft. east of the discovery well, a gas and distillate producer. In the Yzaguirre area, approximately 2 miles northeast of the Rincon field, the same company is moving in material for 1 Seyfriedt in Survey 928, about 1,600 ft. east of the discovery well.

In the same county and approximately 2½ miles northeast of the North Rincon field, Sun 1 Saenz, Survey 80, is preparing to retest after the well flowed 9 bbl. of fluid per hour of which 95 per cent was salt water and the balance oil, from perforated casing at 5,499-5,500 ft. This well was drilled to a total depth of 5,590 ft., and casing was cemented to test a series of sands logged by an electrical survey.

Operators interested in the development of the Glen field, Webb County, were watching the outcome of a scheduled production test of Jay Simmons et al 1 Yeager, 1 mile south of production, just across the county line of Zapata County in Survey 258. Sand showing oil was reported cored at 2,172-78 ft., and casing was cemented on top of the sand. Discovered this year, the field has proven one of the most important shallow discoveries in the Laredo district in several years, and the completion of the present well is expected to result in increased activity.

In Duval County Magnolia 1 Duval County Ranch Co. was drilled to a total depth of 2,212 ft., and 5½-in. casing was cemented at 1,040 ft. preparatory to testing shaly sand with an oil odor, logged at intervals from 990-1,006 ft. Location is the G.C.&S.F.R.R. Survey 289.

In the southwest extension area of the Hoffman field, Duval County, Gilcrease Oil Co. 1-B Salazar, Survey 3, is reported to be flowing oil and an unestimated amount of water while testing through perforated casing at 2,632½-34 ft.

Balcones Fault Line

Fred Pederson 1 Brown, located in the Tanglewood area, Lee County, perforated casing in the Pettit formation at 8,558-74 ft., and the well swabbed salt water with a show of oil. The swab was stuck in the hole, and the operator is trying to recover same.

In Falls County M. A. Hayes Jr. 1 Watkins, James Powell Survey, is bottomed in the Edwards lime at 2,148 ft., and 5½-in. casing is being cemented for a production test. Drill cuttings from the Edwards section is reported to have carried oil shows.

In Wilson County W. Nelson 1 Platner topped the Edwards lime at 3,860 ft., and the well is drilling in lime at 3,863 ft.

SOUTHWEST TEXAS COMPLETIONS

CORPUS CHRISTI DISTRICT

Jim Wells County

Premont field: Howell & Hubble 1 Engleking, 20 bbl. fluid, 88 per cent fresh water, jetting, sand 2,370-75 ft., T.D.
Wade City field: Arkansas 1 Schreade, 105 bbl., ⅛-in. choke, perf. casing 4,928-31 ft., T.D. 4,940 ft.
Coquat & Quinn 5 Pundt, dry, T.D. 4,930 ft.

Nueces County

East Flour Bluff field: Humble 2-D State, 160 bbl., ⅛-in. choke, T.D. 6,803 ft.
South Clara Driscoll field: Texas Conservation Oil Co. 2-B Flynn, 105 bbl., 5/32-in. choke, perf. casing 5,392-97 ft., T.D. 5,409 ft.
Stratton field: Southern Minerals 3 Stratton, 195 bbl., 5/32-in. choke, perf. casing 6,392-6,410 ft., T.D. 7,206 ft.

Refugio County

La Rosa field: Shield Oil Co. 1 Rooke, 202 bbl., 5/32-in. choke, perf. casing 5,424-27 ft., T.D. 8,015 ft.
Tomoconnor field: Quintana 39 Heard, 748 bbl., ¼-in. choke, perf. casing 5,902-08 ft., T.D. 5,925 ft.
Quintana 24-A Williams, 585 bbl., ¼-in. choke, perf. casing 5,878-86 ft., T.D. 5,925 ft.

Victoria County

Coleto Creek field: Bay Oil & Gas Co. 3 Zimmer, gas well, perf. casing 2,232-40 ft., T.D. 2,842 ft.
Heyser field: Gulf 41-B Traylor, 103 bbl., 3/32-in. choke, sand 5,470-90 ft., T.D. 5,492 ft.
McFaddin field: Barnsdall 2 Marberry, 83 bbl., 7/64-in. choke, sand 4,409-19 ft., T.D.

LAREDO DISTRICT

Duval County

Cedro Hill field: Magnolia 13 Duval County Ranch Co., 21 bbl., ¼-in. choke, sand 1,462-65 ft., T.D.
O'Hern field: Magnolia 1 Benavides, dry, T.D. 3,400 ft.
Lundell field: Magnolia 9 Duval County Ranch Co., 40 bbl., jetting, sand 1,518-23 ft.

Jim Hogg County

Colorado field: C. Andrade 2-E Trevino, 132 bbl., 5/32-in. choke, sand 2,937-49 ft., T.D.
V. F. Neuhaus 2-G Trevino, 144 bbl., ¼-in. choke, T.D. 2,933 ft.
Wildcat: Texas 1 Armstrong, 5 bbl., distillate and 3,180,000 cu. ft., gas ⅜-in. choke, sand 3,618-56 ft., T.D. 3,601 ft.

Starr County

Boyle field: Barsodi Petroleum Co. 1 Vela, 28 bbl., 3/32-in. choke, perf. casing 3,174-79 ft., T.D. 4,202 ft.
Sun field: Sun 5-A Montalvo, 173 bbl., 9/64-in. choke, T.D. 4,944 ft.

Webb County

Bruni field: Tide Water 8 Bruni, dry T.D. 10,295 ft.
Glen field: Houser & Campbell 3 Bruni, 50 bbl., ¼-in. choke, sand 2,153-64 ft., T.D. 2,164 ft.
Transwestern 11-A Bruni, 12 bbl., ¼-in. choke, sand 2,142½-61 ft., T.D.
West Cole field: Magnolia 11-A Benavides, 17 bbl., pumping, sand 2,354-61 ft., T.D.

SAN ANTONIO DISTRICT

Bexar County

Gas Ridge field: Southwest Drilling Co. 3 Covell, dry 435 ft.
Somerset field: C. F. Heman 1 Miller, dry, T.D. 1,510 ft.

Guadalupe County

Darst Creek field: Cities Service 8 Dowdy, 42 bbl., pumping, T.D. 2,620 ft.

Medina County

Wildcat: Oakes, Tarver 1 Lindeburg, dry, T.D. 1,010 ft.

SOUTHWEST TEXAS DRILLING REPORT

Bexar County

Joe Noake 2 Medina Irrigation Farms, 5 mi. NW of Somerset, W. Miller Sur. 180, spudded.
T. O. Woodruff 1 Lamm, Jose Antonio de la Garza Sur., drilling shale 1,529 ft.

Brooks County

West Production Co. 1 Ehlers, 6 mi. NE of Falfurrias, drilling shale 5,486 ft.

Hidalgo County

Humble 1 American Life Insurance Co., Lot 1, Blk. 13, Missouri Texas Land & Irrigation Co. Sub., drilling shale 6,236 ft.

La Salle County

H. R. Cullen 2 Wildenthal Jr., S.A.&M.G. Sur., drilling shale 5,467 ft.

Nueces County

H. H. Howell 1 Schulze, Palo Alto grant, drilling shale 7,062 ft.
E. A. Graham 1 Lear, 2 mi. S of Corpus Christi, drilling shale 3,000 ft.

San Patricio County

British American 1 Hunt, 1 mi. NW of East White Point field, S. S. Gillett Sur., recovered salt water drill-stem test 7,045-50 ft.
Plymouth 1 W. A. Hall, 1 mi. NE of East White Point field, drilling shale 5,557 ft.

Willacy County

Pan American 1 Garcia, 14 mi. E of Lyford, San Juan de Carrecitas grant, drilling shale 8,400 ft.

East Texas Fields

(Continued from Page 121)

Red River County

J. F. Morrissey 1 Tyler, James Miro Sur., 3½ mi. SE of Bogata, 5,000-ft. test, S.D.R. 1,115 ft.

Upshur County

H. C. McGahey 1 Ludie Turner, SE cor. 200-acre tract in A. Butler Sur., top Pecan Gap 2,380 ft., base Pecan Gap 2,970 ft., S.D. 4,211 ft.

Wood County

Amerada Pet. 1 J. J. Lloyd, William Barnhill Sur., 7 mi. E Yantis, top Nacatoch 1,695 ft., Pecan Gap 2,592 ft., base Pecan Gap 2,785 ft., top Woodbine 4,483 ft., drilling 4,495 ft.
Bobby Manziel 1 F. M. Morrison, James Pollock Sur., 4 mi. N Hawkins, 10-in. at 100 ft., drilling 3,040 ft.

Van Zandt County

T. G. Shaw 1 D. T. Riley, 100-acre tract in Leander Smith Sur.; Glen Rose test, first report.

Vincennes Discovery Is Best Well For Week in Indiana

By STAFF CORRESPONDENT

EVANSVILLE, Ind., Oct. 7.—Indiana's completion record during the past week was seven oil wells, two gassers and a dry hole. As usual, the bulk of the new production came from the Gibson-Posey County area, but the most important development was the completion of W. C. McBride's pool opener near Vincennes. This well, 1 Winckler, flowed 492 bbl. after acidization from the McClosky. Other activity in the state was routine in character.

An interesting wildcat, Basin Drilling Co. 1 Oakland College, found 14 ft. of saturation in the Aux Vases. Location is NE NE NE 38-8n-11w. Newspapers carried accounts of organized cheering on the part of the student body during the drilling of this well. If successfully completed, it will probably be the first where the drilling crew has been "assisted" in this way.

INDIANA COMPLETIONS

Gibson County

Joe Bander et al 9 Cooper....NW SW NE 13-3s-14w
Pumped 84 bbl. oil, 30-qt. shot, T.D. 2,138 ft.
Lewis Prod. 12 Cooper-D.....NE NE NW 13-3s-14w
Pumped 207 bbl. oil, 20-qt. shot, 2,480-96 ft.
Papoose 13 Cooper-A.....NE NE SW 13-3s-14w
Pumped 285 bbl. oil, 3,000 gal. acid, McClosky 2,853-65 ft., T.D. 2,873 ft.
J. E. Anis 1 Cooper.....NW NW NW 14-3s-14w
Location abandoned.
Hall Edwards 5 Maier.....SE SE NE 14-3s-14w
Location abandoned.
Apex et al 2 Skiles.....NW NW NE 18-3s-13w
Rig abandoned.

Hancock County

J. H. Snyder 1 Clift.....E½ E½ E½ 17-15n-7e
Dry, Trenton 970-96 ft.

Knox County

W. C. McBride 1 Winckler....SW SW SW 24-2n-11w
Flowed 492 bbl. oil, tubing, 2,000 gal. acid 1,872-78 ft.

Posey County

Nelson Dev. Co. 3 Hortsman..SW NW NW 8-6s-12w
800,000 cu. ft. gas and show water, T.D. 1,166 ft.
Paul Rossi 3 Egli.....SE SE NW 19-6s-12w
Pumped 117 bbl. oil first day, 63 bbl. oil second and third days, natural, T.D. 2,727 ft., P.B. to 2,385 ft.
Paul Rosi 2 Egli.....SE SE NW 19-6s-12w
350,000 cu. ft. gas, perf. 350-63 ft., T.D. 1,185 ft., P.B. to 400 ft.
R. B. Seager et al 1 Reis.....SW SW NE 1-7s-12w
Location abandoned.

Spencer County

Bowen Hoover et al 3 Rothert..SW NW NW 1-5s-6w
Pumped 5 bbl. oil and 10 bbl. water, 80-qt. shot, 714-50 ft.

Vandenburg County

Vandenburg Oil 12 Hornley....NE SW SW 33-5s-10w
Pumped 8 bbl. oil, 100-qt. shot 865-937 ft.

INDIANA DRILLING REPORT

Gibson County

Midwest et al 1 Rainey.....SW SW SW 11-2s-9w
Glen Dean 1,196 ft., drilling 1,275 ft.
K. T. & F. Oil Dev. 1 Shoultz..NE NE SE 18-1s-9w
Old T.D. 1,320 ft., Ste. Genevieve 1,640 ft., water 1,760 ft., S.D. 1,791 ft.
Newton P. L. 1 Mary E. Carrithers.....
SW NW SW 25-1s-10w
Ste. Genevieve 1,701 ft., drilling 1,734 ft.

Hendricks County

Griffin Oil 1 Hobbs.....SW NE SE 17-15n-2e
Trenton 1,160 ft., S.D. 1,305 ft.

Knox County

W. C. McBride 1 Lewis.....NE NE NE 36-8n-11w
Glen Dean 1,401 ft., drilling 1,495 ft.

Posey County

Basin Drlg. Co. et al 1 Oakland College.....
SE SE NW 16-8s-14w
Aux Vases 2,565 ft., saturation 2,568-84 ft.
C. T. Somers et al 1 Hill.....NE NE NE 2-4s-14w
Benoist 2,863-75 ft., slight show oil, drilling 2,915 ft.

Spencer County

J. C. Ellis 1 Fisher.....E½ SW NE 29-7s-6w
Rigging up.

Sullivan County

S. E. Bailey 1 Wible.....NE NE NW 36-8n-11w
H.F.W., S.D. 614 ft.

Vandenburg County

Weir & Sparrow 1 Nurrenbern..NE SE SW 5-7s-11w
Show oil 1,010-31 ft.

OHIO FIELDS

CAMBRIDGE, Ohio, Oct. 7.—A Noble County test found disappointment in the Oriskany as Barnesville Development Co. 1 O. E. Heister, Center Township, Section 23, topped the Niagara lime at 3,880 ft., the Oriskany coming in at 4,020-30 ft. with a slight show of oil and a little water. The test is being deepened to the Clinton sand. In Harrison County, Moorefield Township, Frank Stranges et al 1 B. B. Barclay, Section 29, had the top of the Corniferous lime at 4,164 ft., now drilling at 4,220 ft. and should reach the Oriskany next week.

Of the 28 completions in the Ohio fields, 7 were gas, 7 were dry, and 14 were small oil pumpers. Perry County wielded the only gasser gaging better than 1,000,000 cu. ft.

In Lake County, East Ohio Gas Co. (Carter) reached the Red Medina in the test on the Andrews farm, Lot 90, Kirkland Township, and it was a dry hole in all formations. On the F. L. Mather farm, Lot 15, Concord Township, this company is drilling in the Big lime and should reach the Clinton this week. No Newburg horizon was identified. This company's test on the George W. Cryle farm, Chardon Township, Geauga County, is still shut down in the Red Medina.

In Belmont County, the Natural Gas Co. of West Virginia is drilling at 3,050 ft. in the test on the E. A. Mobley farm, Section 19, Smith Township.

Ashland County

Perry Twp.: Price et al 1 J. A. Finley, Sec. 17, 5 bbl., shot, Berea 733-83 ft.

Coshocton County

Pike Twp.: Dunn Mar Oil & Gas Co. 4 B. C. and Jas-

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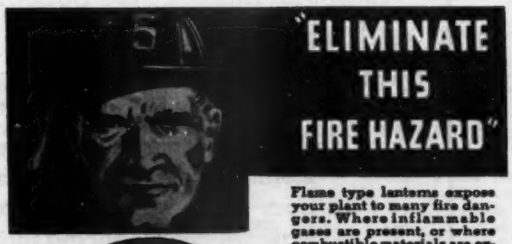

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mine Ashcraft, NW Sec. 14, 40 bbl., Clinton sand, T.D. 3,243 ft.

Jackson County

Milton Twp.: F. P. Hurt 2 McKell heirs, Sec. 28, 150,000 cu. ft. gas, shot 1,750 lb. gel., Ohio shales 1,525-1,764 ft.

Jefferson County

Saline Twp.: C. S. Kelley et al 4 Etta Barnhouse heirs, SW Sec. 29, 10 bbl., Berea, T.D. 1,217 ft.

Lawrence County

Union Twp.: Ohio Fuel 1 J. B. Rich, Sec. 9, 75,000 cu. ft. gas, shot, 3,000 lb. gel., Ohio shales 2,305-2,697 ft.

Licking County

Mary Ann Twp.: Hoover Bros. 3 Robt. Reidenour, Lot 9 fourth quarter, 8 bbl., shot, Berea 631-42 ft.
Newark Twp.: Ohio Fuel 1 Guy Watkins, Lot 7, second quarter, dry, Clinton, T.D. 2,395 ft.
Perry Twp.: Stricker & Armbuster 13 G. E. Patton, Sec. 6, 2 bbl., Berea, T.D. 640 ft.

Lorain County

Grafton Twp.: Forest Oil 14 Chas. W. Wise, Lot 53, dry, Berea 125-88 ft., T.D. 240 ft.

Medina County

Chatham Twp.: Fred C. Shaner et al 1 Minnie Rowe, Lot 40, Chatham Village, 2 bbl., Berea, T.D. 479 ft.
Fred C. Shaner et al 3 Margurite Matthews, Tract 13, Lot 31, input water well, T.D. 497 ft.
Marine Trust Co. 5-A Daniel Ross, Tract 13, Lot 4, 5 bbl., Berea, T.D. 439 ft.
Marine Trust Co., 07 Daniel Ross, Berea, input water well, T.D. 395 ft.,
NYO Oil Co. et al 4-N Thomas Brown, Jr., Sec. 16, 5 bbl., Berea, T.D. 480 ft.
NYO Oil Co. et al 3-F Thomas Brown, Jr., Sec. 16, 1 bbl., Berea, T.D. 374 ft.
Spencer Twp.: Ohio Fuel 1 W. Bridges estate, Sec. 19, dry, no Clinton sand, T.D. 2,570 ft.

Monroe County

Sunsbury Twp.: Barnesville Dev. Co. 2 W. D. Hopton, Sec. 34, 275,000 cu. ft. gas, shot, Berea 2,201-09 ft., T.D. 2,211 ft.

Noble County

Noble Twp.: W. C. Harper et al 1 John Hayes, NW Sec. 24, 2 bbl., Three-hundred-foot sand, T.D. 243 ft.
Stock Twp.: Wool Rocks Oil Co. 1 T. W. McBride, Sec. 29, dry, Berea, T.D. 1,675 ft.
Wayne Twp.: Cohen Gas Co. 2 J. W. Rich, Sec. 9, 40,000 cu. ft. gas, Keener 980-92 ft.

Stark County

Lake Twp.: White estate 1 E. Dutt, Sec. 22, 540,000 cu. ft. gas, shot, Clinton 4,512-80 ft.

Perry County

Pleasant Twp.: N. L. Altier & Sons 2 Leonard Agriesta, NW Sec. 33, 5 bbl., Berea, T.D. 1,135 ft.
Allegheny 27 Elizabeth Berrisford, NE Sec. 33, 5 bbl., Berea, T.D. 1,092 ft.
Lewis Beatrice et al 14 George Plant, SE Sec. 32, dry, Berea, T.D. 1,164 ft.
Thorn Twp.: Ohio Fuel 1 E. H. Hanby, Sec. 28, 1,200,000 cu. ft. gas, Clinton 2,698-2,713 ft.

Tuscarawas County

Fairfield Twp.: Status Dev. Co. 2 E. E. Swartz, Sec. 4, 240,000 cu. ft. gas, shot, Clinton 4,961-5,041 ft., T.D. 5,086 ft.

Washington County

Aurelius Twp.: Turner Oil Co. 1 Allen Addie, SW Sec. 7, 2 bbl., Three-hundred-foot sand, T.D. 320 ft.
Fearing Twp.: Lorentz Bros. 4 Catherine Lorentz, Lot 103, dry, Mackburg 5'0-foot sand, T.D. 1,051 ft.
Decatur Twp.: McKetrick et al 1 Z. E. Weekly, Sec. 35, dry, stray, T.D. 1,522 ft.

WESTERN KENTUCKY

OWENSBORO, Ky., Oct. 7.—Ten oil wells and three dry holes were completed in Kentucky during the past week. The Utica and Handyville districts of Daviess County continue active, while the Hebbardsville pool in Henderson County shows varying results. During the past week the state's best producer was completed in this pool, as well as a dry hole.

Daviess County

Handyville dist.: Ohio 6 Steve Coombs, 130 bbl., 80-qt. shot, Jett 1,210-37 ft.
Stewart & Snyder 7 Anna Ezell, 85 bbl., 180-qt. shot, Jett 1,225-57 ft., T.D. 1,640 ft., P.B. to 1,261 ft.
Teller 1 E. F. Leobold, 75 bbl., 120-qt. shot, Jett 1,259-85 ft., T.D. 1,419 ft., P.B. to 1,350 ft., old T.D. 1,259 ft.
Ohio 7 Steve Coombs, rigging up.
Ohio 8 Steve Coombs, location.
C. T. Johnston, trustee, L. I. Iglehart, location.
Staves 10 L. I. Iglehart, location.
Teller 5 E. F. Leobold (east tract), drilling at 375 ft.
Utica dist.: Baldwin 4 A. A. Westerfield, 145 bbl., 60-qt. shot, Barlow 1,446-60 ft., 80-qt. shot, Bethel 1,507-26 ft., T.D. 1,531 ft., old T.D. 1,187 ft.
Farmer 6 Martin Weaver, 10 bbl., 60-qt. shot, Cunningham 1,452-93 ft.
Farmer 4 J. E. Brown (south 50 acres), rigging up.
Daugherty 6 C. W. Howard, rigging up.
Baldwin 6 A. A. Westerfield, drilling 500 ft.
Red Hill dist.: Penn.-Ind. 19 First National Bank, 25 bbl., 40-qt. shot, Stray 657-63 ft., 60-qt. shot, Jett 790-805 ft., 20-qt. shot, Jones 905-13 ft., T.D. 916 ft.

Henderson County

Hebbardsville dist.: Hupp 2 Otto Busby (King-Pruitt Mineral), 320 bbl., lower Jett 1,541-48 ft.
Hupp & McCummings 1 Otto Busby (50-acre tract), dry through lower Jett, T.D. 1,564 ft.
Schaffer et al 1 R. H. Butler, location.
Corydon dist.: Sun 1 J. S. Clark, dry through McClosky, T.D. 2,695 ft.

McLean County

Ohio 3 G. B. McManama (Tract No. 2), 40-bbl. flow, McClosky 1,672-80 ft., old T.D. 1,385 ft.

Ohio County

Fordsville dist.: Miller 5 John Whittler, 10 bbl., 80-qt. shot, Jett 382-420 ft.
Livermore dist.: Producers 4 Hardin heirs (east tract), 80 bbl., 30-qt. shot, Bethel 1,495-83 ft., T.D. 1,504 ft., P.B. to 1,495 ft.
Ralph dist.: Globe 4 Ada Kelly heirs, dry through Jett, T.D. 589 ft.
Friendship Church dist.: Mayer 5 R. J. Brannon, drilling at 350 ft., McClosky test.

EASTERN KENTUCKY

ASHLAND, Ky., Oct. 7.—One oil-well completion marks the report of activities in the eastern Kentucky fields this week.

The Affiliated Oil Co. has completed No. 3 on the Parish McCarty tract, and reports a production of 5 bbl. daily. The well is located in Johnson County.

The Kentucky-West Virginia Gas Co. gives completion data on No. 5274 J. G. Carlisle on Big Branch of Little Mud Creek in Martin County, as 4,500,000 cu. ft. of gas. Rock pressure was 447 lb. on 48 hours. The gas well reached a total depth of 2,895 ft. in Big lime.

Appalachian Fields

(Continued from Page 120)

Kight & Mackey 1 Nancy J. Marshall, 450,000 cu. ft. gas; Berea, T.D. 2,074 ft.
Union dist.: Pittsburgh & W. Va. 1 W. H. Freshour, 21,000 cu. ft. gas, Injun sand, T.D. 2,459 ft.

Upshur County

Banks dist.: Standard Gas 1 E. E. Friend, 1,600,000 cu. ft. gas, Big Injun 1,881-1,934 ft., gas 1,893-1,934 ft., T.D. 1,934 ft.

Wayne County

Lincoln dist: Owens, Libby-Owens 26 Wilson Coal Land Co., small gasser, Brown shale, T.D. 3,369 ft.
Butler dist.: Chartiers Oil Co. 1 Albert Ronk, 700,000 cu. ft. gas in Corniferous, Big lime 1,224-1,410 ft., Big Injun 1,410-1,580 ft., Berea 2,024-34 ft., Brown shale 2,560-3,095 ft., Corniferous lime 3,095 ft., T.D. 3,838 ft.
Union dist.: Southern W. Va. Gas Co. 27 B. J. Prichard, 325,000 cu. ft. gas, Big lime 1,459-1,625 ft., Big Injun 1,648-1,730 ft., Berea 2,257-72 ft., Brown shale 2,775-3,255 ft., T.D. 3,258 ft.

Wetzel County

Grant dist.: Carnegie 1,432 E.L. Glover, 31,605 cu. ft. gas; Fourth sand 3,270-85 ft., gas 3,272 ft., T.D. 3,426 ft.

Oriskany Gas Field—Kanawha County

Poca dist.: Godfrey L. Cabot, Inc. 2 Poca Land & Coal Co., 268,000 cu. ft. gas, Corniferous 4,930 ft., Oriskany 5,035 ft., T.D. 5,094 ft.

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Tests in San Juan Plateau Region Get Under Way

By T. R. INGRAM

DENVER, Colo., Oct. 7.—The Rocky Mountain area had 11 completions of which 6 were oil wells, 4 were dry holes, and 1 a gas well. Best completions were in the Lance Creek field by Continental Oil Co., all in the Leo pay. These were 7-Apex-3 for 1,222 bbl., 12 Otto Rohiff for 1,565 bbl., and 6 Apex-3 for 190 bbl. The only other completion in Wyoming was North La Barge Oil Co. 1 Good-Nothing, a dry hole.

In Montana Glacier Production Co. 2 Abraham and M. R. Wagner 1 Tribal-184 were completed in Cut Bank for 135 bbl. each. Kevin-Sunburst had a 3,710,000-cu. ft. gas well in Hannah-Porter 2 Williams, and Montana-Dakota Utilities 315 Merchant Trust, and Fulton-Commonwealth 5 Thompson were dry.

New operations include a wildcat in the Badito-Alamo district, Huerfano County, Colorado, for R. L. Jewett No. 4, in Cut Bank in Montana, and No. 5 in Kevin-Sunburst.

A new wildcat is getting under way in the Gallina Mountain district, Rio Arriba County, New Mexico, by Denver parties.

COLORADO

Fremont County

U-Tex Oil 1 Hassler ..... NE 28-20s-69w
Running 8¼-in. to set at 75 ft.

Huerfano County

R. L. Jewett 1 Valdez is spudding in a 3,500-ft. test to the Dakota in the Badito-Alamo district. Location is 5 miles southeast of the Parker Club well in 4-28-68, which in 1931 reached the top of the Lakota at 4,115 ft., where it had a show of oil in a bad hole. Several efforts subsequently were made to clean out this hole and get a test, but none of these were successful.

R. L. Jewett 1 Valdez ..... S½ NW 30-28s-67w
Spudding. First report.

Logan County

West Plains 1 Sheldon ..... SE NW SW 3-10n-55w
T.D. 2,200 ft., cleaning out.

Moffat County

Steamboat Springs Synd. 1 Sutton NE NE SW 1-5n-96w
Drilling 2,287 ft. in pink shale and sand.
Texas 2 Wick ..... Lot 9, 10-4n-91w
T.D. 4,555 ft., testing on pump.
Mountin Fuel Supply 6-B Wilson NE SE 14-12n-100w
Drilling 3,170 ft., may go to 4,000 ft. before testing several saturated sands.
Texas 6 Knowlton ..... SE cor. Lot 8, 10-4n-91w
Drilling on junk at 4,557 ft.

Park County

South Park Oil Co. 1 Lamar is drilling in sand at 7,466 ft. Sand is identified by C. E. Shoenfelt, geologist, as the Apache Creek, topped at 6,910 ft. and continuing to present depth with exception of some thin breaks. It is completely saturated, but no pressure is back of it and it does not give up the oil. No trace of water has been found in the 556 ft. of sand drilled.

South Park Oil 1 Lamar ..... NE NE SE 34-11s-75w
Drilling 7,466 ft. in saturated brown sand.

Rio Blanco County

Texas-California 5 Unit ..... NW NE NE 34-3n-94w
Location.
Raven O. & R. 31 Government SW NW NE 31-2n-102w
Rigging up.
Buford Oil 1 Government ..... SW SW 16-1n-91w
Drilling at 4,201 ft. in anhydrite and red shale, probably the Amsden top at approximately 3,975 ft.
Texas-California 4 Unit ..... NW NW NW 2-2n-94w
Drilling 6,334 ft.

WYOMING

Crook County

Vickers-Continental 1 Duncan-Lobban ..... NE NW SW 28-57n-64w
Drilling in shale at 1,681 ft., sand at 1,645-67 ft. contained water.

Niobrara County

Lance Creek had three completions, all in proven territory and all in the Leo horizons.

Continental 7 Apex-3, SE SE NW 34-36n-65w, was completed as a flowing well at 5,496 ft., total depth, making 1,222 bbl. on official gage through perforations in the 7-in. set at 5,479 ft., after acidizing with a total of 2,000 gal. Casing was perforated with 48 holes at 5,340-60 ft. and with 12 holes at 5,403-81 ft., and production is from the Leo horizon.

Continental 12 Otto Rohiff, SW NW SW 32-36n-65w, an outside well on the northwest flank, but in proven territory, was completed at 5,350 ft., total depth, and flowed 1,565 bbl. the first 24 hours from three horizons in the Leo through perforated 7-in. set at 5,344 ft., after acidizing with a total of 2,000 gal. Casing was perforated with 50 holes at 5,008-32 ft., 9 holes at 5,049 ft., and 46 holes at 5,060-83 ft.

Continental 6 Apex O.P.C.-3, SE NE NE 34-36n-65w, was completed at 5,353 ft., total depth, in the Leo sand at 5,316-50 ft., for 190 bbl. in 24 hours after acidizing with a total of 2,000 gal. The 7-in. was set at 5,297 ft.

Argo Oil Co. 15-A Elliott, SE NE NE 6-35n-65w, is an abandoned location for a Leo sand well. Instead, it will go back into its 3 Elliott, NE NE Section 6 and deepen it from the Sundance. Last named was completed in the Sundance at 3,804-40 ft. in June 1935 for 2,400 bbl. initial.

Continental 21 Tom Bell ..... NW SE SE 33-36n-65w
Rigging up.
Ohio 9 State ..... NW SW NW 36-36n-65w
Drilling 3,490 ft.
Argo 9 Ford ..... SE SW NE 33-36n-65w
Drilling at 2,323 ft., cemented 11¾-in. at 344 ft.
A. B. Cobb 7 Novick ..... NW SE SW 6-35n-65w
T.D. 5,332 ft., set 7-in. at 5,296 ft., acidized with 2,000 gal., testing.
Continental 20 Tom Bell ..... NW SE SE 33-36n-65w
Drilling at 4,432 ft. in red beds, cored saturated basal Sundance at 3,991-4,047 ft.
Ohio 8 Rohiff ..... NW SW NE 32-36n-65w
Drilling at 1,264 ft., cemented 11¾-in. at 293 ft.

Park County

Continental 4 Northern Pacific-1 SE NE SE 23-58n-98w
Drilling at 2,795 ft. in red beds.
Resolute 2 State ..... SW SW 16-57n-101w
T.D. 10,121 ft., testing through liner cemented at 10,005 ft.
Resolute-Coastal 4 Government ..... SE SW 13-56n-98w
T.D. 1,118 ft., testing through tubing.

Sublette County

North La Barge Oil Co. 1 Good-Nothing, SW SW SE 16-27n-113w, La Barge field, an old well deepened from 1,000 ft., was dry at 2,005 ft.

North La Barge Oil 1 Govt. ... NE SE NE 28-27n-113w
T.D. 1,050 ft., testing.
L. W. Davis 1 ..... SE SE NE 33-27n-113w
Drilling 1,110 ft., ¾ mi. S and W of production.
North La Barge 1 State ..... SW SW SE 16-27n-113w
Rigging up.
Texas 2-G Government .... NE NW NW 27-27n-113w
Drilling 678 ft.

Sweetwater County

Sinclair-Wyoming 75-A .... NW SW NW 11-26n-90w
T.D. 4,236 ft., testing Tensleep.
Sinclair-Wyoming 94-A ..... NW NW NE 10-29n-90w
T.D. 1,900 ft., cleaning out to test Lakota.
Farson Oil & Gas 1 Government .. SE NE 18-25n-108w
Drilling 1,385 ft.
Union Gas 1 Hummer ..... NW NW NE 6-17n-103w
T.D. 2,110 ft., rigging up rotary.
Gus Pongratz et al 1 Clark ..... NW NE 22-19n-104w
Coring at 4,787 ft., sand at 4,220-4,630 ft. saturated with oil and water.
Red Desert Corp. 1 Aspden NW SW NW 34-18n-103w
Drilling at 4,043 ft., cemented 8⅝-in. at 3,970 ft., perforated and ran cement back of casing to restore circulation.
Vermilion Oil 2 Government . SW SW SW 7-12n-99w
T.D. 3,535 ft., reaming to lower 8⅝-in. to bottom.

MONTANA

Carbon County

Continental 1 Prigge ..... SE SE SE 33-9s-25e
T.D. 3,562 ft., testing.

Garfield County

H. H. Schwartz, Jr., 1 Charles ... SE NW 21-15n-30e
T.D. 3,000 ft. in Kirby sand above Madison lime. Mosby dome.

Glacier County

Cut Bank had two completions and four new operations.

Glacier Production Co. 2 Abraham, SW SW SE 19-34n-5w, swabbed 135 bbl. the first 24 hours at 2,788 ft., total depth, from the Cut Bank sand at 2,721-86 ft. Main pay was at 2,772-86 ft. Sunburst at 2,680-2,716 ft. had a good show of oil. The 7-in. was set at 2,745 ft.

M. R. Wagner 1 Tribal-184, NE cor. 13-32n-6w, swabbed 135 bbl. the first 24 hours at 2,914 ft., total depth, from the Cut Bank sand at 2,874-2,914 ft., with the main pay at 2,900-14 ft. Sunburst at 2,806-61 ft. had a show of oil.

Texas 9 Morrison ..... 660 ft. S of N¼ cor. 27-35n-6w
Location. First report.

M. R. Wagner 3 Tribal-173 .... SW SE SE 12-32n-6w
Location. First report.
Glacier Prod. Co. 4 Neill ..... SW NE 20-33n-5w
Location. First report.
A. B. Cobb 1 Tribal-187 ..... SE NW 19-32n-5w
Location. First report.
Kullberg 1 Tribal ..... NE cor. Lot 3, 19-32n-5w
Building rig.
Glacier Prod. 7 State ..... NW NW SW 18-32n-5w
Drilling 1,605 ft., top Colorado 565 ft., cemented 10¾-in. at 600 ft.
Texas 4 Unit 11 ..... CWL NW SW 11-35n-6w
Cemented 10-in. at 678 ft., top Colorado 647 ft.
Texas 10 Unit 9 ..... SW SE 9-32n-5w
Drilling 500 ft.
Texas 5 Tweedy ..... SW NW 21-35n-6w
Cemented 10-in. at 322 ft.
Montana-Dakota 1 Tribal-112 . SW NW NE 16-35n-6w
T.D. 2,885 ft., building derrick to replace old one pulled in.
Montana Headlight 7 Britton ... NW NW SE 11-34n-6w
Drilling 900 ft.
Glacier Prod. 3 Hall ..... NW SE 35-36n-6w
Small volume of water at 3,053-57 ft., P.B. and testing.
Texas 7 State ..... SE NW 16-32n-5w
Cemented 7-in. at 2,931 ft., drilling out through pipe at 2,915 ft.
Texas 9 Unit 9 ..... NW SW 9-32n-5w
Cemented 10¾-in. at 625 ft., top Colorado 600 ft.

Toole County

Kevin-Sunburst had four completions, of which one was a gas well and two were dry holes. There were five new operations.

Twinfields Oil Co. 1-A Government, 220 ft. out of the NW cor. 28-35n-3w, made around 120 bbl. of fluid, of which 50 per cent was water, at 1,785 ft. 2 ft. in the contact, after acidizing with 500 gal. The oil was increasing and water decreasing at the end of the first period.

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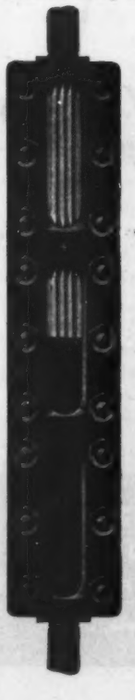

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Fulton-Commonwealth 5 Thompson, NE SW NE 28-35n-3w, found the contact dry at 1,692 ft. and drilled to 1,707 ft. where there was a show of oil in a break in the lime, but not commercial.

Hannah-Porter 1 Williams, SW NE SE 35-33n-2w, gaged 3,710,000 cu. ft. of gas from the Sunburst sand at 1,372-1,408 ft., and has been connected up with the line to Conrad.

Montana-Dakota Utilities 315 Merchant Trust, SW SE 25-34n-1w, was plugged at 1,425 ft., total depth. It was dry in the Sunburst sand at 1,305-25 ft.

Casper Olen 11 Engemoen..... NW NE SW 11-35n-2w
Location. First report.
Pfabe & Engleking 13 Govt. CNL SE SE 19-35n-2w
Drilling 410 ft. First report.
Vander Pas 4 Ward..... NE NW SW 28-35n-3w
Rigging up. First report.
A. B. Finland et al 1 Dewald SW NW SE 23-26n-2w
Drilling 160 ft. First report.
Coolidge & Coolidge 2 State SE SW SE 26-36n-2w
Rigging up. First report.
Texas 9 Swears..... SE SW SW 9-35n-2w
Drilling 160 ft.
Consolidated Gas 2 Haukland SE SE SE 28-33n-2w
Drilling 1,300 ft.
C. D. and H. O. Stock 6 Haggerty SE cor. 13-35n-2w
Drilling 640 ft.
Prevol & Shay 1 Government SW NW 15-35n-3w
T.D. 1,840 ft., small show oil, contact dry at 1,800-65 ft., will acidize.
H. F. Patterson 1 Government NE SE SE 15-35n-3w
Drilling 1,585 ft., show of oil in Sunburst sand at 1,532-80 ft.
Frank P. Walsh 1 Mowat SW NW SE 7-33n-2e
Drilling 1,188 ft. in Colorado shale, est. 4,000,000 cu. ft. gas at 1,185 ft.
Montana Gas 1-X Nelson SE NE 12-35n-1e
T.D. 1,525 ft., underreaming 7-in.

NORTHWEST NEW MEXICO

McKinley County

Petroleum Products 12 Hospah..... NE 1-17n-9w
T.D. 1,575 ft., testing.
Petroleum Products 13 Hospah..CSL SE NW 1-17n-9w
Building rig.

Rio Arriba County

Edward B. McKenna is building road to location for a test of the Gallina Mountain structure near the center of Rio Arriba County. The objective will be the lower Pennsylvanian and older beds. The Dakota and intervening formations to the base of the upper Pennsylvanian are eroded and drilling will not be deep. C. M. Rath, of Denver, geologized the structure and the Cow Gulch Oil Co. stockholders have interests.

E. B. McKenna 1 Govt.-Rath unsurveyed NW 29-26n-2e
Moving in materials. First report.

UTAH

Daggett County

The northwest limits of the Clay Basin gas field were defined by Montana Fuel Supply Co. 5 R. D. Murphy, SW NE SW 15-3n-24e, which was plugged and abandoned at 6,064 ft., total depth, after testing the Dakota series. It had the top of the Frontier at 5,581 ft., and in that formation it had several shows of gas, none commercial. Location is nearly a mile west of 1 State, completed in the Dakota in 1936 for 8,500,000 cu. ft. of gas initially, and ½ mile northeast of 1 Government, completed last July in the Dakota for 15,214,000 cu. ft. of gas.

Illinois Fields

(Continued from Page 102)

Sitesinger 1 Miller.....W½ SE NE 8-7s-10e
Dry, Aux Vases 2,385 ft., Ste. Genevieve 2,905 ft., St. Louis 3,045 ft., T.D. 3,075 ft.

ILLINOIS DRILLING REPORT

Bond County

G. Brainard 1 Lindley.....NE NE SW 26-6n-4w
Slight show gas in Benoist (?), drilling 780 ft.
Central States 1 Rich.....NW SE NE 28-6n-4w
S.D. 1,985 ft.
J. Farrelly 1 Kyle.....SW NW NW 28-4n-4w
Old T.D. 1,327 ft., drilling by tools at 1,417 ft.
Kingwood 1 Hentz.....SW NE NW 18-5n-3w
8⅝-in. 127 ft., drilling 150 ft.

Clark County

Ohio 1 Davidson.....N½ NE SE 3-10n-11w
Salem 1,490 ft., Osage 1,680 ft., drilling 1,960 ft.
E. G. McDevitt 1 Hammond..NW NW SE 24-12n-14w
Location. First report.

Clinton County

B. E. Martin 1 E. Just.....NE NE NE 9-2n-1w
Derrick.
J. Wellinghoff 1 Huelsmann.....NE NE SE 17-1n-3w
Rigging up. First report.
Snell & Goldsmith 1 Schaefer SW NE NW 33-2n-3w
Elev. 454 ft., T.D. 2,570 ft., P.B. to 2,535 ft., pumped 3 bbl. oil and 1 bbl. water, testing.
L. S. Miller 1 Schmidt..... C E½ W½ SE 35-2n-5w
Hardin sand 2,190 ft., Devonian 2,193 ft., drilling 2,245 ft.
Jones, Bechtel & Burgess 1 Hester.....
NW SW NE 35-3n-1w
Golconda 1,247 ft., Cypress 1,365 ft., Cypress sand 1,368 ft., water, running 8-in. at 1,400 ft.
B. E. Martin 2 Heinzmann.....NE NE NW 9-2n-1w
Glen Dean 1,123 ft., Benoist 1,440 ft., drilling 2,786 ft.

Coles County

W. P. Miller 1 S. P. Taylor....NE SW NE 33-14n-10e
Pennsylvanian sand 265-68 ft., oil and gas, S.D. 268 ft.

Crawford County

Fuller et al 1 Barnes.....7-5n-11w
S.D. 1,893 ft.
Bell Bros., 1 George Kersey.....NE SE NE 1-5n-13w
T.D. 2,805 ft., P.B. to 1,451 ft.
L. A. Plumb 1 Snider.....W½ NW SW 27-6n-12w
Drilling 300 ft., 16-in. casing 100 ft.

Edwards County

J. D. Varner 1 Hodgson.....N½ NE 1-2s-10e
Location. First report.

Effingham County

C. L. Erwin 1 Patterson.....SW SW NE 18-8n-4e
Rig. First report.

Fayette County

John Pummell 1 Isbell.....NW NE SW 33-8n-1w
Slight show gas 650-65 ft., slight show oil 990-98 ft., drilling 1,165 ft.

Ford County

Nelson et al 1 Erp.....SW NW SE 19-24n-7e
Platteville 1,890 ft., drilling 2,205 ft.

Gallatin County

Carter 1 B. M. York.....SE SE SW 33-7s-8e
Show oil 240-50 ft., 580-90 ft., drilling 1,022 ft.
Exchange 1 O. Evans.....NE NE NW 20-8s-8e
Rigging up. First report.

Greene County

Scroggins 1 McVay.....SW NE 4-10n-11w
S.D. 230 ft.
Exchange (was Blackstock) 1 Webb.....
NE SW SE 13-5s-6e
Old well, T.D. 3,518 ft., to deepen, McClosky 3,368-3,478 ft., 5½-in. 3,479 ft.

Hamilton County

Exchange-Kingwood 1 Prince....NW SW NW 31-5s-7e
Location. First report.
Texas 1 G. Edwards.....NW NE NE 3-6s-6e
Location. First report.

Hancock County

Exchange 1 General Am. Life Ins. SE SW NW 36-5s-6e
Location. First report.
Sam Tate et al 1 J. Rice.....SW NE NW 28-4n-5w
Drilling 1,055 ft.

Henderson County

Medina 1 M. L. Evans.....NW NW NW 18-9n-4w
Drilling 705 ft.

Jasper County

Johnson 1 V. V. Hunt.....E½ SE NE 17-8n-10e
1,000 gal. and 3,000 gal. acid, pumped 14 bbl. oil and 34 bbl. water in 12 hrs., testing.
Ater et al 1 A. Pippen.....SE NW SW 16-8n-10e
Rig. First report.

Jersey County

Hughes Pet. 1 Kollall.....SE SE NE 22-8n-12w
Trenton 625 ft., drilling 1,003 ft.

Lawrence County

Robinson 1 Sauers.....NW SE NE 20-3n-12w
Elev. 508 ft., drilling 2,862 ft.
W. Payne 1 H. Payne.....NW SW NW 20-3n-11w
Moving in. First report.

Madison County

Aich & Carroll 1 Rinkel.....SE NE NW 33-5n-6w
Drilling 340 ft.

Montgomery County

Ed Solomon 1 Carroll.....NE SE NE 3-8n-5w
Drilling 763 ft.
H. C. Detrich 1 W. H. Barnes NW NE SE 20-10n-2w
Drilling 305 ft.
Seaboard 1 O. Lay.....NW NW SE 20-8n-5w
Devonian 1,768 ft., drilling 2,160 ft.
Cunningham 1 J. Waggoner...SE NE NE 19-11n-5w
Drilling 585 ft.
Swords & Thompson 1 Vett.....NE SE SE 24-8n-4w
S.D. 320 ft.

Randolph County

Rand Dev. 1 Grant.....SE SE SE 17-5s-5w
Slight show oil in Devonian 2,134 ft.

Saline County

Parker & Son 1 fee.....NW SW SE 8-10s-5e
Elev. 412 ft., drilling 3,970 ft.
H. G. Spiller et al 1 Ada Sisk...NE NE NE 15-10s-1e
Setting pipe 50 ft.

Schuyler County

O. A. Reed 1 S. F. Horney.....NW SW SE 22-3n-2w
Drilling 450 ft.

Tazewell County

W. E. Adams 1 Mullney.....SE SE SW 15-22n-5w
Fishing 440 ft.

Wabash County

C. Heneipp 1 J. Smith heirs...SW SW SE 15-1n-12w
Drilling 2,075 ft.
O'Mera 1 Harris.....SE NE SW 17-1s-12w
10-in. at 100 ft.
Leighty et al 1 W. Trimble..E½ E½ E½ 35-2n-12w
Location. First report.

Washington County

Joe Bialock 1 J. W. Helper...SW SW SW 19-3s-14w
Spud. First report.

Wayne County

McCoy & Henry 1 Forth.....SW SW NW 3-2s-6e
Glen Dean 2,638 ft., Benoist 3,043 ft., Ste. Genevieve 3,208 ft., drilling 3,295 ft.

White County

M.I.O.U. 1 H. G. French.....E½ SE SE 4-3s-8e
Drilling 2,416 ft.
W. C. McBride 1 F. Hon.....SW SE SW 33-3s-14w
Ste. Genevieve 2,838 ft., testing 1½ bbl. oil and 2 bbl. water per hr.
Mazda & Palmer 1 Lee Storms N½ SW SE 26-5s-9e
McClosky 3,132-46 ft. and 3,158-64 ft., 1,000 gal. acid, swabbed 3 bbl. fluid per hr., reacidized 3,000 gal., no increase, testing.
Carter 1 H. Questell.....NW NE SW 2-7s-9e
T.D. 2,403 ft., P.B. to 1,116 ft.

Woodford County

Morton O. & G. 1 Moreland...NW NW SE 31-26n-1e
S.D. 2,020 ft.

Douglas County

Taylor 1 Baldwin.....SW SE SE 33-16n-9e
Osage 265 ft., Kinderhook 460 ft., Devonian 570 ft., drilling 575 ft.

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Delta Farms Gets New Pay in Mile Extension Outpost

By F. L. SINGLETON

NEW ORLEANS, La., Oct. 7.—The completion of a second producing well from the deep sand in the Iowa field, Calcasieu Parish, and the opening of a new producing horizon and important extension to the Delta Farms field, La Fourche Parish, featured developments in the Louisiana Gulf Coast the past week.

Magnolia 4 Wait, located northeast of the deep-sand discovery well in the Iowa field, Calcasieu Parish, was completed for an initial production of 769 bbl. of 32.7-gravity oil per day, flowing through a ¼-in. choke. Drilled to a total depth of 8,237 ft. production was obtained by perforating casing at 8,225-36 ft. The sand section was logged about level with that of the discovery well, which indicates that the sand overlies the structure in a uniform condition. Shell 32 Heyd, south offset to the deep discovery, is nearing the pay and a drill-stem test was being made at 7,997 ft. Magnolia 14 Wait a deep test located to the southeast is drilling in shale below 7,350 ft.

In Delta Farms field, La Fourche Parish, Texas 1 State-Bayou Perot extended production approximately 1 mile southeast and opened a new producing horizon for the field when it flowed at the estimated rate of 725 bbl. of pipe-line oil per day while testing through a ¼-in. choke. The well has been in the process of completion for several weeks, and after showing gas at 9,745-60 ft., the hole was plugged back and final completion was made at 8,774-8,815 ft. This is in a much shallower sand than the discovery well which was completed in sand below 11,000 ft.

Field Developments

In the Neal field, Beauregard Parish, Atlantic Refining Co. was preparing to complete its eighth Wilcox sand producer. No. 3 Spiers an east offset to the discovery well is bottomed at 8,431 ft. and 5½-in. casing was cemented on bottom preparatory to testing the 8,300-ft. sand. The company's 1-C Rice Land & Lumber Co., an outpost well southwest of production, is preparing to drill ahead from a total depth of 4,555 ft. where operations were held up for several days due to a fishing job.

Humble 2 Leger, an east offset to the discovery well of the South Crowley field, Acadia Parish, is drilling in shale below 8,200 ft. This is several hundred feet below the discovery pay, and the well looms as a failure as no shows have been reported.

On the Calcasieu Lake dome, Cameron Parish, Superior 3 State which established a new drilling record for the district the previous week, was abandoned at a total depth of 13,610 ft. Before the hole was abandoned, it was plugged back and several tests, at intervals from 8,567-77 ft., recovered salt water. The company is expected to move the rig higher up on the structure where location for 4 State was made.

In the Erath field, Vermilion Parish, Humble 1 Vermilion Parish School Board, ½ mile due west of the discovery well, was scheduled to be tested after cementing 7-in. casing on bottom at 11,676 ft. Sand showing gas was reported logged at intervals from 10,370-80 ft. and 10,390-10,405 ft., while sand showing oil was reported cored at 11,480-90 ft.

The La Fourche Crossing field, La Fourche Parish, was extended a slight distance to the southeast as Mikton Oil Co. 4 Martinez is reported to have flowed an estimated 250 to 300 bbl. of oil per day while testing through perforated casing at 10,105-13 ft.

In the Quarantine Bay field, Plaquemines Parish, Gulf Refining Co. was attempting to open production from a deeper sand in 20 State. The well is bottomed at 10,536 ft. and the well is testing slightly below 10,500 ft.

LOUISIANA GULF COAST COMPLETIONS

Acadia Parish

Ritchie field: H. J. DeArman 1 McManus, gas well, perf. casing 2,375-80 ft., T.D. 3,561 ft.

North Crowley field: Humble 8 Williams, dry, T.D. 8,801 ft.

Ascension Parish

Darrow field: Humble 30 Community, 454 bbl., ¼-in. choke, top sand 4,731 ft., T.D. 4,743 ft.

Calcasieu Parish

Starks field: Lutcher Moore 7 fee, 117 bbl., ¼-in. choke, perf. casing 4,812-30 ft., T.D. 5,021 ft.

Evangeline Parish

Villa Platte field: Continental 2 Fontenot, 130 bbl., 7/32-in. choke, T.D. 8,974 ft.

Iberville Parish

Bayou Blue field: Superior 4 Schwing, 139 bbl., ⅛-in. choke, perf. casing 4,652-62 ft., T.D. 6,441 ft.
Superior 1 E. B. Schwing, dry, T.D. 10,140 ft.

La Fourche Parish

Golden Meadow field: Bateman Drilling Co. 1 Collins, 95 bbl., 16/64-in. choke, perf. casing 5,430-43 ft., T.D. 5,500 ft.
Brown & Woods 5 State, 195 bbl., 12/64-in. choke, T.D. 4,200 ft.
Raceland field: Amerada 1 J. P. Moore, 150 bbl., 5/32-in. choke, perf. casing 8,208-20 ft., T.D. 9,780 ft.

Plaquemines Parish

Potash field: Humble 4 Orleans Levee Board, dry, T.D. 5,000 ft.

St. Landry Parish

Wildcat: J. Graham 1 Sibille, dry, T.D. 3,872 ft.

St. Martin Parish

Anse La Butte field: Crosby Drilling Co. 2 Republic Prod. Co., 415 bbl., 7/32-in. choke, sand 4,755-83 ft., T.D.
Crosby Drilling Co. 2-A Republic Prod. Co., dry, T.D. 1,805 ft.
Glassell & Glassell 4 Breaux, 350 bbl., 10/64-in. choke, perf. casing 4,326-40 ft., T.D. 4,343 ft.

R. P. Phillips 1 Hyman, dry, T.D. 4,775 ft.

St. Mary Parish

Cote Blanche field: Texas 5 State, dry, T.D. 5,156 ft.
Charenton field: Pan American 22 Laws Realty Co., dry, T.D. 3,040 ft.

LOUISIANA GULF COAST DRILLING REPORT

Avoyelles Parish

W. C. Brock 1 Snowden, 10 mi. NE of Marksville, 22-3n-5e, spudded.

Calcasieu Parish

W. T. Burton 1 Mayo Realty Co., South Lake Charles prospect, drilling in sidetracked hole 9,268 ft.
W. T. Burton 2 Lutcher Moore Lumber Co., Starks field, drilling sand and shale 5,927 ft.

Cameron Parish

Superior 4 Vincent, West Hackberry field, drilling shale 8,335 ft.
Pure 19 Stanolind Oil & Gas Co., Sweet Lake field, drilling sand and shale 7,400 ft.

Iberia Parish

Texas 6 Jefferson Island Salt Co., Jefferson Island field, drilling shale and lime 8,537 ft.
Texas 4-B State, Vermilion Bay field, drilling sandy shale and lime 10,755 ft.

Iberville Prish

Humble 3-B Wilberts & Sons, Bayou Des Glaize dome, drilling shale 5,395 ft.

Jefferson Parish

Shell 1 State-Bayou des Illettes, 27-20s-24e, dry, T.D. 12,000 ft.

Jefferson Davis Parish

Union Sulphur 1 Fontenot, SE edge of Welsh field, drilling sandy shale 8,520 ft.
Union Sulphur 1-B Calcasieu National Bank, Woodlawn field, drilling shale 9,280 ft.

Livingston Parish

Humble 1-B Great Southern Lumber Co., 21-7s-4e, drilling shale 6,597 ft.

Plaquemines Parish

Gulf 1 State, Black Bay prospect, drilling shale 10,487 ft.

St. James Parish

Shell 1 Federal Land Bank, La Pice field, coring sand and shale 10,250 ft.

St. John the Baptist Parish

Pan American 2 Mill, W of discovery well La Place field, drilling shale 8,815 ft.

St. Martin Parish

Shell 2 Iberville Land Co., Happytown field, coring sandy shale 10,175 ft.

Vermilion Parish

Fohs Oil Co. 1 Mulvey Irrigation Co., Gueydan field, drilling shale 9,486 ft.

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CLEVELANDS

Overisel Boomlet Slows Down With Three Dry Holes

By OTTO C. PRESSPRICH

SAGINAW, Mich., Oct. 7.—Dry holes were the only developments in abundance last week in Michigan oil fields as the completions report, listing 28 tests, revealed only eight producers, of which at least two were barely of commercial value while 18 others were listed as dry. There were two natural-gas wells, each rating around 1,750,000 cu. ft., in Montcalm County.

While Allegan's Overisel area was seeing a development boom, three of the six completions were dry holes, one rated only 2 bbl. a day, after acid treatment; another, 90; the third, 240. Heath, Manlius and Saugatuck townships each recorded one dry hole.

Van Buren County had four failures in Bloomingdale and Columbia townships, and a Crockery Township test in Ottawa County also was dry. Best success was encountered in Tallmadge of Ottawa, where four completions rated 8, 10, 25, and 108 bbl. after acidizing.

A 175-bbl. well in Arenac's Adams field was completed, another was dry. A few others were testing pay zones, as were several in the new Hamilton section of Clare County. A Roscommon Township, Roscommon County, deep test was dry at 4,008 ft., while another deep test, Sun Oil Co. 1 Kidder, wildcat in Section 8 of Rutland Township, Barry County, passed a small show of oil at about 3,680 ft. and was down near 4,300 ft. at the week's end. The test is one of the deepest ever drilled in the southern part of the state. Trenton limestone is the goal. In other wildcat sections of the state, including Gratiot, Huron, Cass, and St. Joseph counties, widely scattered areas, there were no developments of note.

Twelve counties share in the 20 drilling permits issued by the state Conservation Department during the week, nine being for wildcat tests, one for gas. Clare, Isabella, Shiawassee, and Montcalm areas are to be tested in Central Michigan, while five permits are for Allegan. Berrien, Cass, Huron, Muskegon, Ogemaw, Ottawa, and Van Buren also are locations.

Declining Michigan production was reflected in the state Tax Commission's report that August severance taxes were $34,145, compared with $34,494 in July.

MICHIGAN COMPLETIONS

Allegan County

Heath Twp.: Bridger Basin Oil Co. 1 Kuite, NE NE SW 4-3n-14w, dry, T.D. 1,580 ft.
Manlius Twp.: Fletcher-Leman 1 Brower, SE NE NE 1-3n-15w, dry, T.D. 1,529 ft.
Overisel Twp.: Red-Man Oil Co. 2 Poelakker, NW SE NW 9-4n-14w, dry, T.D. 1,477 ft.
W. L. McClanahan 3 Hoffman, SE SW SE Sec. 16. 90 bbl., acid, T.D. 1,534 ft.
Red-Man Oil Co. et al 1 Barkel, SE SW SW Sec. 16. dry, T.D. 1,611 ft.
Red-Man Oil Co. 1 Nyhuis, SE SE SW Sec. 16, dry, T.D. 1,567 ft.
N. R. Dodd 4 Rigterink, NW NW NW Sec. 22, 240 bbl., acid, T.D. 1,501 ft.
Lillie & Johnson et al 2 Beltman, NW SE SW Sec. 27, 2 bbl., acid, T.D. 1,546 ft.
Saugatuck Twp.: Douglas Development Corp. 1 Crane, SE NE SE 17-3n-16w, dry, T.D. 2,000 ft.

Arenac County

Adams Twp.: Smith Petroleum Co. 1 Stone, SW SW SW 14-19n-3e, dry, T.D. 2,998 ft.
United Drillers & Producers, Inc., 1 Klein, SW SE SE Sec. 23, 175 bbl., acid, T.D. 2,050 ft.

Manistee County

Bear Lake Twp.: Collins & Shoemaker 1 Schimke, NW SW NW 31-23n-15w, dry, T.D. 1,676 ft.

Monroe County

Dundee Twp.: A. V. Oil & Gas Co. 4 Gartner, SE SW SE 19-6s-6e, dry, T.D. 2,160 ft.
B. A. Wendraw 2 Delaney heirs, NE NW NE Sec. 30, dry, T.D. 2,131 ft.
A. V. Oil & Gas Co. 7 Roe, NW NE NW Sec. 30, dry, T.D. 2,150 ft.

Montcalm County

Belvidere Twp.: Belvidere Oil Co. 1 Bradley, SE NW NE 20-12n-7w, 1,775,000 cu. ft. natural gas, T.D. 1,307 ft.
Home Twp.: Belvidere Oil Co. 1 Dickinson-Towles, SE NW NW 14-12n-6w, 1,750,000 cu. ft. natural gas. T.D. 1,255 ft.

Ottawa County

Crockery Twp.: C. E. Bliss 1 Merkins, SW NW NW 21-8n-15w, dry, T.D. 2,170 ft.
Tallmadge Twp.: George L. Kernodle 4 Snip, NE NE NW 25-7n-13w, 25 bbl., acid, T.D. 1,897 ft.
Swanson Colsidated Oil Co. 1 Osinki, SW SW SE Sec. 28, 8 bbl., acid, T.D. 1,910 ft.
William H. Clock 1 Baldwin, NE NE SW Sec. 34, 10 bbl., acid, T.D. 1,901 ft.
Smith Petroleum Co. 4 Fenske, NW SE NW Sec. 34. 108 bbl., acid, T.D. 1,857 ft.

Roscommon County

Roscommon Twp.: Wracco Syndicate 1 Wracco, NE NW NW 14-21n-4w, dry, T.D. 4,008 ft.

St. Clair County

Clyde Twp.: C. J. Farley 1 Walker, NE SE NW 26-7n-16e, dry, T.D. 824 ft.

Van Buren County

Bloomingdale Twp.: C. C. Goff 2-A Maier, SE NE NE 14-1s-14w, dry, T.D. 1,284 ft.
Brown, Downs & Kuhns 1 Banks, SE SE SE Sec. 11, dry, T.D. 1,314 ft.
H. Brown Cannon Tr. 1 Miller, SE NE NE Sec. 21. dry, T.D. 1,341 ft.
Columbia Twp.: F. R. Marceau 1 fee, C E½ NW NE 26-1s-15w, dry, T.D. 1,175 ft.

To Rework Boggy Creek Wells

New activity was seen for the 13-year-old Boggy Creek field in eastern Anderson County, East Texas, when Humble Oil & Refining Co. sold its holdings to Adams & Lyles, Inc., of Lubbock, Tex. Under terms of the deal, Humble Oil & Refining Co. transferred 17 producing Woodbine sand wells. Production from the field will pass the 5,000,000-bbl. mark next month. The operators acquiring the leases and wells plan to clean them out, rework them, and attempt to double the property's production.

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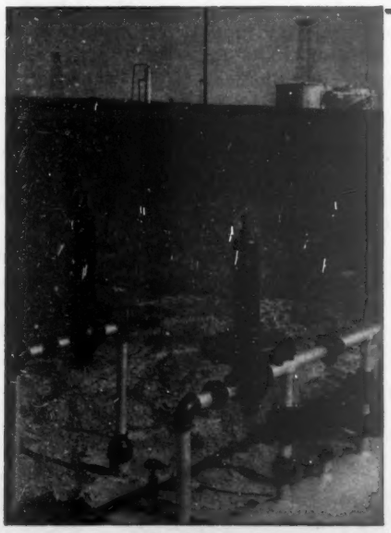

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MISSISSIPPI AND SOUTHEAST

Wildcatting Continues to Spread Over Southeast

By GEORGE WEBER

JACKSON, Miss., Oct. 7.—Mississippi wildcatting increased again last week with several tests beginning, and no abandonments during the 7-day period. New tests spudded in Grenada, Marshall, Sharkey and Warren counties.

Leasing continued throughout Mississippi and southern Alabama and Florida. Recent blocking operations point to new wildcat tests in Carroll, Leake and Bolivar counties, and the W. O. Allen test, recently abandoned in Warren County, may be revived to core the entire Wilcox section. A large lease of 700,000 acres is believed taken by a major oil company in Escambia County, Alabama, and Escambia County, Florida, and further leasing is active in the Florida Panhandle.

Interest this week is directed to the Jones & Crosby 1 Allen, Attala County wildcat in 33-13n-5e. The test was carried into the Tuscaloosa formation at 4,534 ft. and an electrical survey showed possible oil sand at 4,018-25 ft. Sidewall cores were taken at 3,840, 3,880 and 4,021 ft. but showed no oil. However, operators are planning to plug back to 4,021 ft. and drill-stem test the section.

The wildcat topped the Selma chalk at 3,003 ft., the Eutaw formation at 3,772 ft. and the Tuscaloosa at 4,300 ft., with an elevation of 290 ft.

Tinsley

Three wells were completed at Tinsley, two from the Woodruff sand and one from the Perry sand. Of the total of 82 wells in the field, 62 are now pumping. The lowered reservoir pressure is further reflected in the fact that most wells are now brought in on the pump. Four such tests are now awaiting pumping units to be completed.

Tinsley production has continued to decline from the high average of 27,000 bbl. daily in late August and early September, but with an average of nearly 18,000 bbl. last week it has not yet declined to the actual demand figure as was expected 2 weeks ago. Of the present production about 7,500 bbl. is moving to Baton Rouge where it is charged to the Standard Oil Co. refinery, and about 2,000 bbl. daily is refined in the Vicksburg plant of Edgar C. Johnston. The remainder is going to storage.

MISSISSIPPI COMPLETIONS

Tinsley—Yazoo County

Union 1-A Adcock, NW SE NE 24-10-3, 163 bbl., 12/64-in. choke, C.P. 240 lb., T.P. 135 lb., perf. 4,950-65 ft., Woodruff sand 4,895-4,965 ft., T.D. 5,041 ft.

Union 3 Partridge, SW SW NE 1-10-3, 366 bbl., 24/64-in. choke, C.P. 110 lb., T.P. 100 lb., Perry sand 5,247-79 ft., T.D. 5,483 ft., P.B. 5,291 ft., 7-in. casing 5,343 ft., perf. 5,242-60 ft.

Union 2 Robinette, W NE 19-10-2, 462 bbl., 12/64-in. choke, C.P. 215 lb., T.P. 255 lb., Woodruff sand 4,785-4,883 ft., T.D. 4,917 ft., set 7-in. casing 4,950 ft.

MISSISSIPPI FIRST REPORTS

Wildcat—Winston County

Frame & Young 1 H. C. Chancellor, NE 9-13n-14e.

Wildcat—Yazoo County

R. J. Dean 1 Allgood, NE NW 6-10-2w.

Tinsley—Yazoo County

Hassie Hunt 1 Milner, SE SW 6-10-2.

E. C. Johnston 7-B Brumfield, NE NW 2-10-3.

Union Producing Co. 3 Robinette, SE NW 19-10-2.

MISSISSIPPI DRILLING REPORT

Attala County

Jones & Crosby 1 J. F. Allen, SW SW 33-13n-5e, T.D. 4,534 ft., took sidewall cores 3,840, 3,880 and 4,021 ft., no shows, plan to P.B. 4,021 ft. to D.S. test, top Midway 2,280 ft., Selma 2,969 ft., Eutaw 3,777 ft.

Jackson & Spearman 1 Crosby, NW NE 3-14n-7e, T.D. 5,273 ft., S.D., top Selma 2,260 ft., Eutaw 2,970 ft., Tuscaloosa 3,540 ft.

Grenada County

James Papadakis 1 Holcomb, SE NE 13-22n-2e, moving in material.

Womble & Williams 1 Conn. General Life Ins. Co., NE NW 28-23n-5e, S.D. 981 ft., elev. 201 ft.

Jones County

T. N. Smith 1 Hollifield, NW SW NW 20-8n-12w, drilling 6,447 ft., top Wilcox 1,905 ft., Midway 4,940 ft.

Lamar County

Tatum Lumber Co. 1 W. S. F. Tatum, NE 14-2n-16w, spudded.

Lee County

R. L. Shoemaker 1 Martin, SW SW NE 33-9s-6e, spudded, S.D.

Marshall County

C. B. Blosser 1 C. Stansback, SE SE 19-3s-4w, spudded 310 ft.

Montgomery County

E. R. Henderson 1 Columbian Mutual Life Ins. Co., 36-21n-5e, S.D. 3,332 ft., top Midway 1,300 ft., Selma 1,570 ft., Eutaw 2,342 ft., Tuscaloosa 2,678 ft.

Sharkey County

British American 1 F. B. Houston estate, N½ NE SW 23-11n-7w, 10¾-in. casing 694 ft.

Tishomingo County

Mellen & Gear 1 E. K. Wood, SE SE SE 21-4s-11e, drilling 85 ft.

Warren County

W. O. Allen 1 Tom Henry, W½ SW 4-7n-4w, spudded.

Magnolia and Exchange 1 Paxton-Brown, NW NW 13-14-4e, set surface casing 190 ft.

Yazoo County

Arcarea Reserve Co. 1 J. G. Holmes, SE SE 22-12n-1e, moving in material.

Edward DeLoach 1 Wilburn, 6-12n-3w, T.D. 3,743 ft., waiting on casing.

Exchange Oil Co. 1 A. E. Edgar, SW NW NW 28-13n-1w, drilling 6,265 ft., top Wilcox 1,745 ft., Midway 3,850 ft., Selma 4,630 ft., Eutaw 5,480 ft.

ALABAMA WILDCATS

Colbert County

Mellen & Gear 1 Alsobrook, SW SW NW 10-4s-15w, T.D. 1,048 ft., show gas, S.D.

Fayette County

B. L. Fillingame 1 T. Harbin, NW SW 3-16s-12w, S.D. 960 ft., elev. 386 ft., show oil 685-94 ft.

Franklin County

E. O. Heath, Jr., 1 W. O. Hester, SW SW 4-6s-12w, sandy lime 72 ft., very slight show oil, drilling 107 ft. in limestone.

Madison County

J. L. Caldwell et al 1 Joe McCord, SE SE SE 30-1s-2e, S.D. 105 ft.

W. W. Newman 2 Nichols, NE NW NE 2-6s-2e, drilling 155 ft.

Morgan County

F. W. Rohwer 1-B Karl Hough, 2-6s-1w, set 8-in. casing 132 ft., drilling 270 ft.

Walker County

Champlin 1 Galloway Coal Co., 12-13s-10w, fishing 2,245 ft., elev. 600 ft., top Chester 1,387 ft., Bangor lime 1,423 ft., Hartselle sand 1,933 ft., Tuscumbia 2,169 ft., est. 200,000 cu. ft. gas 2,193 ft., S.D. 2,363 ft.

ALABAMA COMPLETIONS

Seaboard 1-A J. J. Clark, SE SW 28-11s-14w, dry, elev. 371 ft., Pennington 824 ft., Bangor lime 1,069 ft., T.D. 2,686 ft. in Silurian.

CANADIAN FIELDS

Testing Extension Well in North Turner Valley Area

By VICTOR LAURISTON

CHATHAM, Ont., Oct. 5.—Official figures just issued show that crude and naphtha production from all Alberta fields in August totaled 844,751 bbl. compared with 853,910 bbl. in July.

Among Turner Valley crude producers listed, Home Oil Co. 2 was the largest, with 36,227 bbl. for the month. Home 3 ranked second with 30,395 bbl. and Alberta Oil Incomes 1 ranked fourth with 22,346 bbl. The third largest producer, Arrow Royalties 1, in West Central Turner Valley, delivered 24,810 bbl. The only new producer was Southwest Petroleum 4, in part production with 3,750 bbl.

North Turner Valley

Alberta Oil Incomes 2, LSD 4, 4-21-3w5, got the Madison at 8,409 ft. and was drilled through the upper porous zone at 8,632 ft. The well started flowing by heads and booster gas was used for continuous production. If it develops a good commercial producer, drilling will not be carried to the lower porous zone owing to possibility of water. The upper zone showed about 90 ft. of porosity with indications of a good producer. This is the most northerly production yet encountered in Turner Valley, location being about ¾ mile north of Home 2, previously the most northerly as well as the largest crude producer in the field.

Brazeau Test Abandoned

On the Brazeau structure, in the northern Alberta foothills west of Edmonton, Home Oil 1, LSD 16, 7-43-17w5, has been abandoned and will pull casing and plug. Test was drilled to 8,713 ft., but owing to faulting failed to reach the Madison limestone. Heavy gas pressure was encountered in three horizons from 8,160 to 8,550 ft., the gas lifting the tools in the hole. There was some oil, but not sufficient to make the well a commercial producer. No definite decision has been made as to further development on this structure.

Sarcee Reserve Test

An important new wildcat test is to be drilled on Highwood-Sarcee Oils acreage on the Sarcee Indian Reserve immediately southwest of Calgary. The well, which will likely be known as Inland-Sarcee 1, has been located in LSD 2, 4-23-4w5. Location is in the line of strike of the Turner Valley structure to the northwest. Highwood-Sarcee Oils, organized by the late A. W. Dingman, pioneer of the Turner Valley field, holds a block of 18,000 acres selected after a survey and structure tests involving nearly $50,000 outlay, the holdings pretty well blanketing the western side of the reserve. Drilling will be in charge of Clarence Snyder, using a combination outfit with standard tools for the upper and rotary for the lower formations. Road to location is now being completed and equipment will be moved in this month.

Steveville Operations

In the Steveville field, east of Calgary, Standard of British Columbia 2 Princess, LSD 3, 13-20-12w4, is rigging. Location is about 2 miles south and east of No. 1 Princess, which encountered heavy gas flows in several horizons and will furnish fuel for No. 2. Contract has been let to Dominion Drilling Co., which will use a heavy duty diesel-electric rotary. No. 1 Princess has been capped.

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LEGAL

Department of the Interior, United States Land Office, Las Cruces, New Mexico. Notice is hereby given that a lease of the oil and gas deposits in the following described lands is offered to the responsible qualified bidder of the highest bonus per acre, pursuant to the provisions of section 17 of the act of February 25, 1920 (41 Stat. 437), as amended, at the royalty rate scale in the lease form shown in General Land Office Circular 1386, at a sale to be held in the office of the Register of the District Land Office at Las Cruces, New Mexico, at 10 a.m. on October 14, 1940: E½ SE¼ Sec. 15, T. 17 S., R. 32 E., N.M. P.M., New Mexico, containing 80 acres, in the Baish oil and gas field. The successful bidder must deposit on the date of the sale a certified check on a solvent bank, or cash, for one-fifth of the amount of each bid, and file a showing of qualifications to receive the lease, required by section 7 of Circular 1386. The remaining four-fifths, together with the annual rental in advance at the rate of $1 per acre, must be paid and a $5,000 corporate surety bond must be furnished prior to the issuance of the lease. The bidders are warned against violation of the provisions of section 59 of the United States Criminal Code, approved March 4, 1909, prohibiting unlawful combination or intimidation of bidders. The right is reserved to reject any and all bids at the discretion of the Secretary of the Interior. Register.

Personal Paragraphs

A. T. SCHERER has returned to his position in the natural-gasoline and liquefied-petroleum-gas sales offices of Sinclair Prairie Oil Co., Tulsa, following an absence of 3 years during which he has been in the Southwest recovering his health.

DR. GUILLERMO ZULOAGA, assistant in charge of the land and geological department of Standard Oil Co. of Venezuela, Caracas, Venezuela, and Mrs. Zuloaga are in the United States on a month's tour. They were in Tulsa last week, following a couple of weeks in New York City, and are now visiting other points in the Southwest.

WARREN BEEBE, consulting geologist, Tulsa, has gone to Pasadena, Calif., where he will work on his doctor's degree at the university there.

E. C. BREENE, JR., petroleum engineer with the International Petroleum Co., with headquarters at Negritos, Peru, and Mrs. Breene are visiting the former's parents, Mr. and Mrs. E. C. Breene, Oil City, Pa. Later they will go to Tulsa to visit relatives of Mrs. Breene, the former Lois Yancey. Mr. Breene has been in South America for 6 years with the company. This is his first visit to the United States in 3 years.

WARNER V. SESSIONS, marine purchasing agent for Standard Oil Co. of Louisiana, was retired October 1 at age 62, after 23 years of service.

JOHN WIER VAN TINE, of Bradford, Pa., honored several years ago as "Grand Old Man of the Oil Industry," and Mrs. Van Tine marked their sixty-first wedding anniversary at Bradford, October 1.

LEROY H. SEXTON, independent operator in the Laredo district of Texas, has organized the Sexton Oil Corp., with headquarters at Lake Charles, La. Mr. Sexton is president and EDWARD STICKNEY, of Houston, is vice president.

V. P. GRAGE has resigned his position as geologist with Gulf Refining Co., Shreveport, La., to join the Hunt Oil Co. as geologist in the newly opened Shreveport office. J. E. BELL has been transferred from Dallas as land man for Hunt in the Shreveport office.

TOM W. MENDENHALL, veteran oil-well shooter, and his son, Bobby, of Wichita Falls, Tex., were injured in a nitroglycerin explosion last week near Wichita Falls. The well they were working on was bailing preparatory to shooting it when the explosion occurred.

LUTHER C. TERRELL, agent with the Louisiana Department of Conservation, has been transferred from the Cotton Valley field to the Olla-Jena area in La Salle Parish.

W. A. PRUETT, vice president of the Superior Oil Co., with headquarters at Houston, Tex., has been appointed executive vice president in charge of all company operations.

FRANCIS BLAIR, chief gas engineer for the Texas Railroad Commission's Oil and Gas Division, has tendered his resignation to the commission. He plans to enter the field of private engineering consultation work in Austin, Tex.

THOMAS GIVENS, Rixford, Pa., oil producer, has returned to his home from a trip to Alaska. Mr. Givens went to Alaska in the gold rush of 1898 but failed to find riches. He was successful later on his return to McKean County oil fields.

CURTIS HILL, formerly superintendent in the Alice district, Alice, Tex., for Magnolia Petroleum Co., has been transferred to Wewoka, Okla., as district superintendent. PHILIX R. CORBELL, superintendent for the Lee district at Lovington, N. M., has been transferred to Alice to succeed Mr. Hill.

GEORGE H. CARD, division petroleum engineer, Stanolind Oil & Gas Co., Fort Worth, Tex., and MISS DOROTHY QUARLES, of the production department, were married Monday, September 30, and left immediately for a honeymoon in the Ozark Mountains. Mr. Card, who holds degrees from Colorado and Stanford universities, has been with Stanolind since 1932.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

In a deep test 12 miles south of Independence, Kans., efforts are being made to ascertain what formations are to be found beneath Mississippi lime.

Casper, Wyo., has an oiled road to the fairgrounds and so pleased are the people that they are talking about a complete system of oiled streets.

The British papers are noting with horror that a Rumania company in which there are some British stockholders is selling quantities of oil to Germany. They demand the Britishers either relinquish their holdings or their citizenship.

L. C. Moore, Pittsburgh, Pa., obtained a patent for a steel tower for a derrick.

20 YEARS AGO

Wildest excitement prevails at Miles City, Mont., as a result of the 56 Petroleum Co. getting the first big production in the state. Stock in the company and property near its leases are selling for fabulous prices.

Mexia, Tex., offers a bonus of $6,000 to any driller who will bring in a 100-bbl. well in that territory.

Discovery of a rich oil sand at 160 to 215 ft. was reported in a well near Nevada, Mo., where several wells are being drilled. This is the thickest section of sand yet found in the shallow Nevada pool and has increased the oil excitement decidedly.

10 YEARS AGO

A crowd of 4,000 persons was present when testing began October 5 at the C. M. Joiner wildcat in Rusk County, East Texas. It made three flows in 24 hours, totaling 127 bbl., and looks good for at least 300 bbl. daily. What this new field will do to general proration in Texas can only be assumed at this time, but because of the many small leases which will be drilled on, there seems no hope for holding down production. The mushroom town of Joinerville has been established near the wildcat. Dr. A. D. Lloyd, geologist and part owner of the Joiner well, is starting two tests.

A. A. LOWDER, assistant superintendent for Magnolia Petroleum Co., in the Alice district, Texas, has been transferred to Vanderbilt as assistant superintendent.

S. P. JOHNSON is the West Coast member of the special committee of oil-company engineers to advise the Army and Navy on gasoline storage systems in accordance with National Defense Advisory Commission aims.

R. J. WALLACE, formerly of Tulsa, has been appointed vice president of Republic Natural Gas Co. of Dallas, Tex., and will move with his family to that city immediately. The announcement was made by W. H. WILDES, Republic president.

WINTHROP ROCKEFELLER, Socony-Vacuum Oil Co., Inc., addressing the twenty-fifth National Recreation Congress in Cleveland, Ohio, last week, urged appreciation of "the dignity of labor" as a way to good citizenship, citing his work as a "roughneck" in the Texas fields.

RAY BRAY and WILLIAM STEVENSON, of Union Oil Co., have changed positions, the former moving to Oleum refinery from Los Angeles, Calif., refinery and the latter moving from Oleum to Los Angeles. Both are superintendents of distillation of the company's two major refineries.

GORDON STINE, assistant to JO H. CABLE, consulting engineer of Wichita Falls, Tex., has returned to Wichita Falls after 5 weeks' absence. After spending his vacation in Chicago he spent 3 weeks in Duval County, Texas, where a repressuring job is under way in the Loma Novia field.

B. A. HARDEY, conservation commissioner, State of Louisiana, will be the principal speaker at the first fall meeting of the Ark-La-Tex chapter of the American Petroleum Institute in Shreveport, October 18.

DR. GORDON SCOTT, pipe-line technologist and consulting engineer, discussed submarine pipe lines at the October meeting of the California Natural Gasoline Association, of which L. V. CASSADAY, of Lomita Gasoline Co., is president.

MURRAY C. SELLS, president, Sells Petroleum Co., Longview, Tex., participated in the Mississippi State Horse Show with his string of thoroughbreds, and combined the Jackson trip with business at his branch office there.

HOWARD B. KECK, vice president of the Superior Oil Co., formerly in charge of development and production operations under the Los Angeles, Calif., office, now directs land acquisitions and development of producing operations in the Mid-Continent, Gulf Coast and Midwest districts.

M. M. McCALLEN, president of McCallen Refining Co. and president of Refinery Sales Co., and CARL VON BIBRA, president of Exeter Oil Co. and vice president of the Refinery Sales Co., are making good progress in cooperative marketing but it will be another few weeks before everything becomes smoothed out including the receiving of approval of the trademark to be used.

P. M. ROBINSON, of the research and development department of the Pennzoil Co., Oil City, Pa., was nominated vice chairman of the Oil City district of the Pittsburgh section of the Society of Automotive Engineers at the Wanango Country Club, September 26. The section is seeking greater participation of engineers in the oil industry in western Pennsylvania in its meetings.

Leader in Research

Harry D. Hancock, newly elected chairman of the Natural Gas Section of the American Gas Association, is one of the country's foremost leaders of natural-gas research, and brings to his new office a total of 28 years' experience in the industry. Perhaps his industry in research springs from the fact that he is a native of the "show me" state of Missouri, from the state university of which he was graduated in 1912.

HARRY D. HANCOCK

From 1913 to 1917, Mr. Hancock was employed successively by utilities companies in Amarillo, Tex.; Lincoln, Neb.; Bristol, Va., and Sedalia, Mo. For the following 3 years he was associated with Henry L. Doherty & Co. as gas-efficiency engineer, and for the 5 years following that he served as natural-gas engineer and superintendent of the gas-distribution division of Empire Gas & Fuel Co. and associated companies with headquarters at Bartlesville, Okla.

His next connection was with Gas Service Co. of Kansas City, Mo., from 1925 until 1927, as chief engineer and general superintendent. He rejoined Doherty in 1927 as consulting engineer, and in 1928 was made chief engineer of the natural-gas and gasoline division, with headquarters in New York City. He was employed by Cities Service Co. in 1935 as chief engineer of the natural-gas and gasoline division. He became president of Gas Advisers, Inc., in 1938.

Mr. Hancock has been a member of the main technical and research committee of the Natural Gas Section of the A.G.A. since its organization in 1920. He has been chairman of the important pipe-line committee of the Natural Gas Section from the time it was organized in 1925 to the present and is also a member of the gas-measurement committee.

C. C. BEEBE, drilling superintendent for DR. J. J. DEANER, Tulsa, is stationed at Beardon, Okla., after several months in Illinois.

JACK BARKLOW, formerly division geologist for Deep Rock Oil Corp. at Wichita Falls, Tex., is now with Lane-Wells Co. as a technical adviser at Oklahoma City, Okla.

CARL E. MAGNISON, formerly with Spartan Aircraft Corp. at Tulsa, is now in the petroleum engineering department of Shell Oil Co., Inc., at St. Johns, Kans.

URBAN HUGHES, consulting geologist of Jackson, Miss., was elected president of the Mississippi Geological Society at the organization's first fall meeting recently. Other officers are TOM McGLOTHLIN, Gulf Refining Co., vice president, and D. C. HARRELL, Carter Oil Co., secretary-treasurer.

A. J. BRODERICK, independent operator of Fort Worth, Tex., left last week with Mrs. Broderick and friends, MR. and MRS. ROBERT ARMSTRONG of Flint, Mich., for a month's stay in New York, from where they will go to Florida for the winter.

GEORGE A. BUCHANAN, consulting geologist at Houston, Tex., was elected president of the Houston Geological Society the past week. A. P. ALLISON, district geologist for the Sun Oil Co., was elected vice president. LESLIE BOWLING was elected secretary, and DUGALD GORDON, treasurer.

ROY BRIDGEMAN, formerly superintendent for outlying leases for Phillips Petroleum Co., has been transferred from his former headquarters at Anadarko, Okla., to Wichita Falls, Tex., where he becomes assistant to C. L. MONTGOMERY, division superintendent for North Texas. Mr. Montgomery continues to make headquarters at Vernon, Tex.

RICHARD R. ULLSTROM, formerly field engineer for Stanolind Oil & Gas Co. in the Salt Creek, Wyoming, field with headquarters at Midwest, has been transferred to the company's field office at Ellinwood, Kans. W. O. BLENKARN, superintendent for Stanolind at its electric plant in the Salt Creek field, has been transferred to the company's engineering department at Tulsa.

Shifts: ED M. CATRON, superintendent, Bay Petroleum Corp., from Denver, Colo., to Wichita, Kans.; J. P. CLINE, geologist, National Geophysical Co., from Victoria, Tex., to Opelousas, La.; O. T. LAWHORN, geologist, Geophysical Service, Inc., from Sinton, Tex., to George West, Tex.; E. J. MOCK, superintendent, Tybro Roy Corp., from Hebbronville, Tex., to Tilden, Tex.; C. F. SELLERS, geologist, Robert H. Ray, Inc., from Laurel, Miss., to Mobridge, S. D.; ROBERT M. TESAR, engineer, Carter Oil Co., from Calhoun City, Miss., to Aberdeen, Miss.; MARK H. O'CONNELL, geologist, Cities Service Oil Co., from Lake Charles, La., to Rosenberg, Tex.; E. H. SHANNON, engineer, Texas Co., from Yoakum, Tex., to Brenham, Tex.; JOHN O'BRIEN, engineer, Texas Co., from Fellows, Calif., to Coalinga, Calif.; GEORGE P. DICKEY, president, Dickey Oil Co., from Granby, Colo., to Wichita, Kans.

J. E. NOLEN, of the purchasing department of the Texas Co., has been made chairman of the special committee of the Houston, Tex., community chest.

JAMES A. BUCK, former driller in the Raymilton district in the middle district of the Pennsylvania fields, has been retired by the Pennsylvania Railroad after 41 years of service.

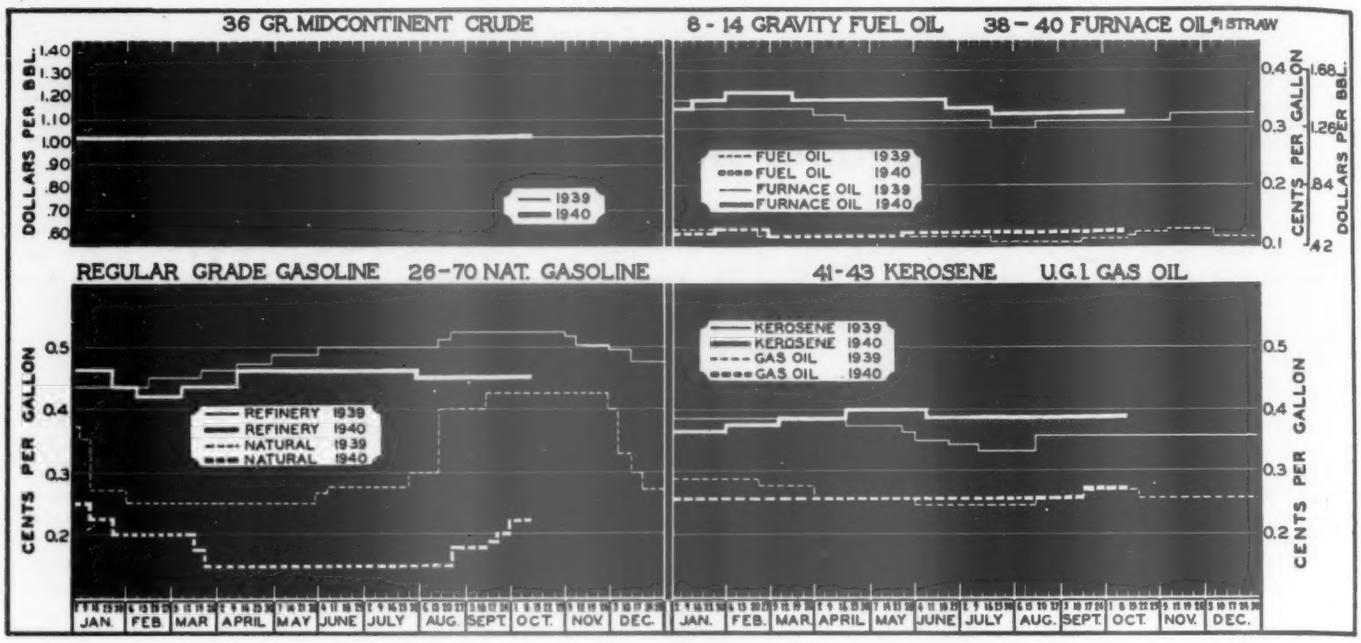
A. H. RINEY, Phillips Petroleum Co., Bartlesville, Okla., has been named chairman of the nominating committee for the Production Division of the American Petroleum Institute, and H. W. CAMP, Cities Service Oil Co., Bartlesville, Okla., has been appointed chairman of the nominating committee for the Refining Division.

GUY BOGART, superintendent of the Lockport, Ill., refinery of the Texas Co., has been elected vice president and general manager of the Indian Refining Co., with headquarters at Lawrence, Ill.

MICHAEL HALPERN, refining division manager of Texas Corp., has been elected a vice president of the corporation. He has been associated with the company for 25 years.

COLIN P. CHANDLER, formerly in charge of land and lease work in Michigan for the Deep Rock Oil Corp., has been assigned to service in Kansas, with headquarters in Wichita. WALTER D. HENDERSON, geologist, is in charge of the Kansas division of Deep Rock.

H. THORNE, of Calgary, Alta., geologist for Calgary & Edmonton Corp. of Winnipeg, is on active service with the C.A.S.F. overseas. His position is being temporarily filled by his father, B. L. Thorne, for many years chief of the C.P.R. natural-resources department at Calgary.



Representative Mid-Continent Quotations on Crude Oil and Refined Products. Basis Oklahoma (Group 3)

Autumn Slump in Gasoline Demand Makes Annual Showing in Group 3

By H. STANLEY NORMAN

THE autumn lull in motor-fuel demand made its first appearance in the Group 3 refining district this week. Contraction of gasoline business has reached no significant proportions. Volume of shipments from Mid-Continent plants continue to exceed similar periods in previous years. There has appeared, however, the first evidence this fall of seasonal decline in demand.

Interest in distillate fuel oils by northern customers has increased in almost direct proportion to the decline of attention to gasoline. Jobbers and refiners have reached a virtual stalemate in their ideas on distillate fuel. Sellers are reluctant shippers of light fuel oils at the current tank-car quotations. Buyers are resisting higher prices for the time with equal vigor.

Refiners Complacent

Refiners are content to add distillate fuel oils to storage at the present. There are a few scattered exceptions to the general practice of resisting more than minimum shipments of distillate fuel but these are confined to operators whose financial position necessitates a frequent turnover of inventories.

Stocks of distillate fuels in the Group 3 territory, including those in Oklahoma, Kansas, Missouri, inland Texas, North Louisiana, and Arkansas, are reported by the A.P.I. for the week ended September 28 at 2,392,000 bbl. A year ago stocks in the same territory totaled 3,051,000 bbl. The decrease of approximately 20 per cent in the available stocks of distillate fuel have been instrumental in producing a tight market condition which promises to continue throughout the winter.

Market observers anticipate that tank-car prices on distillate fuels will move forward in the Group 3 territory more promptly than in some other parts of the country where the majority of this year's increment in stocks are held in readiness for winter demand.

Trends toward slackened gasoline demand within the Group 3 refining district have been indecisive. There is general belief, however, that the signs, slight though they are so far, probably mark the first dip of the demand curve.

Improvement in the tank-car market for locally sold North Texas gasoline appears to be fairly well established. Stocks in that district have been gradually worked into a more desirable position. There is no change in the interstate motor-fuel market and none is expected since additions to storage rather than decreases will be the general rule in the near future unless refinery operating rates are curbed substantially.

Greater demand and higher prices for natural gasoline are the dominating factors in that market. Plant operators are moving material from the North Texas district to the Gulf Coast at rates approximately unchanged from those prevailing for the past 3 weeks. Gulf refiners are buying increasing volumes of natural gasoline to bring their finished motor fuel up to the volatility specifications of winter. Improved demand for natural gasoline in the North Texas market is a direct reflection of the coastwise movement of motor fuel from the Gulf to North Atlantic ports.

Northern Movement Steady

Producers of natural gasoline in Oklahoma report demand from northern customers to be holding strong at higher levels. The progressive improvement in the natural-gasoline market has now extended over a period of 5 or 6 weeks. Prices are still approximately 2 cents per gallon below the market prevailing at this time last year with little prospect that they will reach 1939 levels for some weeks, if at all.

Residual fuels are stronger in the interior market than along the eastern seaboard, partly because inland supplies are related less directly to seasons. The Chicago market for heavy fuels has been raised 0.25 cent per gallon to some classes of delivery. The price was raised to 3.75 cents per gallon last week to customers taking delivery on 1,000 gal. or more at one time of Bunker C fuel. The price scales up to 5.75 for small deliveries.

Refined Oil Market Barometer

Natural gasoline and distillate fuel oils are the petroleum products receiving bulk of the market attention again this week. Demand for refinery gasoline is feeling the first impact of the off season although the decline in shipments to northern consuming centers has not reached serious proportions. Suppliers are resisting effort of buyers to fill fuel-oil storage at current prices.

MID-CONTINENT. Natural-gasoline suppliers are generally asking the high quotations. Fuels are being held in storage for higher spot prices.

GULF COAST. Interest in fuels is growing. Coastwise business in refinery gasoline is slightly better.

CALIFORNIA. Fuel-oil demand is strong but prices are soft. Gasoline is weak.

PENNSYLVANIA. Gasoline demand strong with supplies limited. Wax is strong at higher prices. Lubricating oils are stronger.

CHICAGO. Higher prices for residual fuel oils are being asked. Gasoline prices are soft and supplies plentiful.

North Atlantic Market Reflects Stronger Coastal Conditions

By J. P. O'DONNELL

NEW YORK, Oct. 8.—Considerable evidence of firmness was noted in the eastern refined market during the past week, resulting from seasonally good demand for some products, an average 4-cent increase in Gulf-to-north-of-Hatteras tanker rates and increased strength in the Gulf Coast market.

The 4-cent increase in Gulf-to-north-of-Hatteras tanker rates was probably the most important factor in the increasing firmness in the East Coast market. A comparison of last-paid rates in this service as of October 5 and September 27 follows:

Product—	Oct. 5	Sept. 27
Crude oil	23	19
Gasoline	25	21
Kerosene	26	22
Heating oil	27	23

Last week's improvement in tanker rates was the most substantial of the season. The rates quoted for late September were only 1 cent for crude oil, 3 cents for gasoline, kerosene, and No. 2 fuel oil above those in effect late in August. The increases in rates since the summer lull in tanker demand have totaled 5 cents for crude oil and 7 cents for the other products. Thus the improvement in the past week alone has been greater than that in the entire preceding month.

At least 10 charters were reported in the Gulf-to-north-of-Hatteras trade last week, including the India Arrow, 5,176 tons; the Cities Service Toledo, 5,128 tons; Hadnot, 3,845 tons; Pan Maryland; Iselin, 5,667 tons; Mallory; Mevania, 4,289 tons; Muskogee, 4,435 tons; Swiftscout, 5,123 tons; and the H. C. Folger, 4,389 tons. This represented the largest amount of business in this trade in months. In addition, the Astrell, a Norwegian tanker, was reported chartered from the Netherlands West Indies or Venezuela for October loading at 20 cents a barrel, dirty cargo. Later in the week a tanker was reported chartered in the same run at 23 cents for light crude oil.

As a result of the number of charters contracted in the last 10 days, clean tonnage is reported to be comparatively scarce with only a small amount available for early October loading. Despite last week's abrupt advance and the relative scarcity of tonnage in comparison to a few weeks earlier, the substantially higher stocks of fuel oil already on the East Coast in storage are expected to prevent rates from reaching levels comparable to those of last fall and spring.

Bunker C fuel oil continues to be held at $1.25 by major suppliers with some smaller companies reported to be offering limited quantities at $1.15 per barrel. Some observers expressed the belief that heavy fuel oil should exhibit greater strength due to the reduced nation-wide inventory in comparison to a year ago. However, this condition is not true of the East Coast market. Stocks of residual fuel oil in East Coast terminals and refineries and in its two supplying districts, Louisiana and Texas Gulf, were reported at 22,353,000 bbl. on September 28 by the American Petroleum Institute, up 2,082,000 bbl. from the total on September 30, 1939. With export business generally off on account of the European war, demand for Bunker C oil is likely to be lower than in previous years. Bunker C fuel oil has eased off in some respects from its summer levels and reports of price shading were current previous to the stimulation caused by the improvement in tanker rates.

Freely predicted advances in light heating oils failed to materialize, though the currently quoted prices of 4.1 cents in tank cars and 4 cents in barge lots remained firm. With temperatures in the northeastern area reaching daily minima of below 40°, domestic consumption has been accelerated, but the inventory position continued to rise. Stocks in the East Coast area and its supplying districts rose another 677,000 bbl. in the last week of September.

Motor fuel is another product which has been benefited by the rise in tanker rates; and as a result, a major distributor has announced increased tank-car and tank-wagon prices at many points in the disturbed upstate New York and New England marketing territory. Retail disturbances, widespread in this area throughout the year, continue unabated, however. Price wars have resulted in substantial concessions to consumers and regular-grade gasoline is reported selling at a number of points at 8 gal. for 98 cents, or 12.25 cents per gallon. Under existing commercial tank-car quotations of from 6.1 cents per gallon to 6.6 cents, and with a state and federal tax of 5.5 cents per gallon, the service-station margin in Connecticut points, where gasoline is being sold at the above rates, is from 0.15 to 0.65 cent per gallon.

Also acting to aid the refinery and terminal gasoline prices are fairly well sustained demand and reduced production. This is shown in the fact that stocks of motor fuel in the east continue to decline, having dropped 310,000 bbl. in the last week of September, though they remain approximately 1,500,000 bbl. above a year ago. Runs to stills in the East Coast refining district dropped 10 per cent in the last week of September. As a result of this improvement, prices have steadied from their recent weakness and motor fuel of 72-74 octane is held at 5 cents in the New York market area in tank-car lots and at 4.75 in barge lots. Some suppliers are reported to be asking 5.25 cents in tank cars.

The Pennsylvania lubricating-oil market which has been unchanged for a number of weeks remains stagnant, with little prospect of change. Several suppliers report bright-stock shipments as seasonally satisfactory and at the same time expressed concern over the failure of neutral to exhibit normal early-fall improvement. Definite improvement in the Pennsylvania market is ap-

(Continued on Page 143)

Gulf Coast Markets

HOUSTON, Tex., Oct. 8.—Purchase of several cargoes of gasoline out of the Gulf Coast the past 10 days has resulted in a slightly firmer tone in the coastal market. So far there has been no advance in general quotations but sales have brought relief to the overstorage situation to the end that most distress material has been removed from the picture.

The cargoes were made up from various sources and consisted of different winter grades destined to Atlantic seaboard outlets.

At the opening of the week 70-72 octane gasoline was being quoted firmly around 3¾ cents for the leaded material and from 3⅞ to 4 cents for the unleaded. However, few sources were able to supply unleaded gasoline of that octane. Suppliers also were quoting approximately the same prices for 68-70 octane. Higher-octane gasolines were quoted around 4 cents.

Kerosene also showed some pickup. Four cents continued the prevailing quotation but most of the submarket material has disappeared.

No further easing up in heavy fuel was evident during the week. Following the drop in general quotations to 80 cents for Bunker C, suppliers have shown no inclination to make additional concessions and are holding out for the above price. The market, however, was inactive with no sales of any consequence

(Continued on Page 143)

A.P.I. Weekly Refinery Statistics

Week Ended October 5, 1940

	Capacity reporting (per cent)	Total gasoline stocks (bbl.)	Residual fuel-oil stocks (bbl.)	Gas oil and distillate stocks (bbl.)	Daily crude runs (bbl.)
East Coast	100.0	19,848,000	12,830,000	17,918,000	542,000
Appalachian	91.0	3,375,000	574,000	632,000	123,000
Ind., Ill., and Ky.	90.2	13,913,000	3,393,000	5,716,000	603,000
Okla., Kans., and Mo.	76.9	6,181,000	2,279,000	1,579,000	267,000
Inland Texas	59.6	1,478,000	1,566,000	386,000	116,000
Texas Gulf	89.2	13,131,000	7,608,000	8,539,000	849,000
Louisiana Gulf	97.6	2,507,000	1,834,000	1,288,000	106,000
N. Louisiana and Ark.	51.5	504,000	537,000	331,000	40,000
Rocky Mountains	56.0	913,000	441,000	126,000	56,000
California	87.3	15,466,000	74,952,000	10,342,000	523,000
Total reported	85.3	77,316,000	106,014,000	46,857,000	3,225,000
Est. unreported	.....	4,940,000	1,950,000	1,330,000	330,000
*Est. total	.....	82,256,000	107,964,000	48,187,000	3,555,000
*Est. total previous wk.	.....	82,373,000	108,450,000	47,986,000	3,600,000
*Oct. 6, 1939	.....	71,292,000	114,128,000	38,390,000	3,505,000

*Bureau of Mines basis.

Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATE)

Week ended September 28, 1940	264,209,000 barrels
Week ended September 21, 1940	262,209,000 barrels
Week ended September 30, 1939	233,023,000 barrels

Figures do not include stocks of heavy, unrefinable California crude.

Retail Oil Markets

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of October 8, 1940

Taxes

The gasoline quotations given in the following tables include the 1½-cent federal tax, as well as state, county, and city taxes. The gasoline is the regular or standard grade. In most areas lower grades and a premium grade also are available.

Standard Oil Co. (Indiana)

	Gasoline—Tank wag.	Dlr.	Incl. tax	Kero. tank wag.
Chicago, Ill.	15.6	13.6	4.5	10.0
Decatur	14.6	13.1	4.5	9.5
Joliet	15.6	14.1	4.5	10.0
Peoria	15.6	13.2	4.5	10.0
Quincy	15.4	13.9	4.5	9.8
Davenport, Ia.	15.6	14.1	4.5	‡10.0
Des Moines	15.4	13.9	4.5	‡9.8
Mason City	15.8	14.3	4.5	‡10.2
Duluth, Minn.	16.4	14.9	4.5	10.8
Mankato	16.0	14.5	4.5	9.5
Minneapolis	16.0	14.2	4.5	10.4
LaCrosse, Wis.	17.0	15.5	5.5	10.4
Green Bay	17.4	15.9	5.5	10.3
Milwaukee	16.8	15.3	5.5	10.2
Detroit, Mich.	14.1	12.6	4.5	7.6
Grand Rapids	13.2	11.2	4.5	9.0
Saginaw	14.9	13.4	4.5	9.1
Evansville, Ind.	16.6	15.1	5.5	†9.8
Indianapolis	16.8	14.8	5.5	†10.0
South Bend	16.8	15.3	5.5	†10.0
Fargo, N. D.	18.2	16.7	5.5	11.6
Huron, S. D.	17.5	16.0	5.5	10.9
Kans. City, Mo.*	14.8	13.3	4.5	8.0
St. Louis*	15.2	13.2	4.5	9.0
St. Joseph	14.9	13.0	4.5	7.9
Wichita, Kans.	13.8	12.3	4.5	7.0

*State tax 2 cents, 1-cent city tax, and 1½-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gal. or more, 1.5 cents off; minimum delivery 25 gal.

Stanolex Fuel Oil in Chicago

Effective Oct. 7, 1940, f.o.b. Chicago, tank-wagon prices: Standard heater oil, 1-99 gal., 8.75 cents; 100-149 gal., 7.75 cents; 150 gal. and over, 7.25 cents. Stanolex fuel oil No. 1, 1-99 gal., 8.5 cents; 100-149 gal., 7.5 cents; 150-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents. Stanolex furnace oil, 1-99 gal., 8.5 cents; 100-149 gal., 7.5 cents; 150-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents. Stanolex fuel oil A, 1-399 gal., 5.75 cents; 400-799 gal., 4.75 cents; 800 gal. and over, 4.5 cents. Stanolex fuel oil B, 1-399 gal., 5.75 cents; 400-799 gal., 4.75 cents; 800 gal. and over, 4.5 cents. Stanolex Bunker C fuel oil, 1-999 gal., 4.5 cents; 1,000 gal. and over, 3.5 cents.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline—Cons'r tank wag.	Dlr. vided dlr.	Incl. tax	Kero. tank wag.
Ohio points	16.0	15.0	5.5	*9.0

*Includes state tax of 1 cent.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline—Cons'r tank car	Dlr. tank wag.	Incl. tax	Kero. tank wag.
Atlantic City	11.00	12.60	4.5	7.4
Newark	11.00	12.60	4.5	7.4
Annapolis, Md.	13.35	14.35	5.5	9.5
Baltimore	12.75	13.75	5.5	8.5
Cumberland	14.15	15.15	5.5	10.0
Washington, D.C.	11.00	12.00	3.5	9.5
Danville, Va.	14.95	17.45	6.5	11.0
Norfolk	13.75	16.25	6.5	10.5
Petersburg	14.05	16.55	6.5	11.2
Richmond	14.05	16.55	6.5	10.5
Roanoke	15.25	17.75	6.5	11.0
Charles'n, W. Va.	14.55	17.05	6.5	12.6
Parkersburg	13.85	16.35	6.5	11.2
Wheeling	14.85	17.25	6.5	11.8
Charlotte, N. C.	16.90	17.00	7.5	11.8
Hickory	17.45	18.95	7.5	12.3
Mount Airy	17.30	18.80	7.5	12.2
Raleigh	16.65	16.50	7.5	11.5
Salisbury	16.95	16.00	7.5	11.9
Charleston, S. C.	14.75	17.25	7.5	9.75
Columbia	15.60	18.10	7.5	11.5
Spartanburg	16.30	18.80	7.5	12.7

Price basis to Essolene undivided dealers: Dealer tank-wagon price less 0.5 cent per gallon. Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at a time by hose connection, on yearly purchases: From 2,500 to 100,000 gal., consumer tank-wagon price at time and place of delivery; 100,000 gal. per year, consumer tank-car price plus 0.5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less 0.5 cent per gallon.

Effective January 16, 1939, in North Carolina the commercial consumer schedule became as follows: Single deliveries of 50 gal. or more, consumer tank-wagon price. Single deliveries of less than 50 gal., 4 cents per gallon over consumer tank-wagon price. Generally the posted consumer tank-wagon price will be equivalent to the dealer price, less 0.5 cent per gallon. The above policy also applies in South Carolina, effective January 23, 1939.

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline—Cons'r tank wag.	Net dlr.	Incl. tax	Kero. tank wag.
Atlanta, Ga.	16.0	16.0	7.5	8.0
Augusta	17.0	17.0	7.5	9.5
Macon	16.0	16.0	7.5	9.0
Savannah	16.0	16.0	7.5	9.0
Birmingham, Ala.	16.0	16.0	8.5	9.0
Mobile	15.5	15.5	9.5	8.0
Montgomery	18.5	18.5	9.5	10.0
Jackson, Miss.	16.0	16.0	7.5	9.0
Vicksburg	16.0	16.0	7.5	8.5
Jacksonville, Fla.	15.0	15.0	8.5	8.0
Miami	15.5	15.5	8.5	8.0
Pensacola	17.5	17.5	9.5	8.0
Tampa	15.0	15.0	8.5	8.0
Lexington, Ky.	15.5	15.5	6.5	9.0
Covington	13.5	13.5	6.5	9.0
Louisville	15.0	15.0	6.5	8.5
Paducah	14.0	14.0	6.5	8.5

Price basis to tank-wagon consumers, effective January 4, 1937, 3 cents per gallon below tank-wagon price.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax, and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola, Fla., has a city gasoline tax of 1 cent. All are included in the table.

Pennsylvania and Delaware

ATLANTIC REFINING CO.

	Gasoline—Cons'r tank car	Dlr. tank wag.	Incl. tax	Kero. tank wag.
Philadelphia, Pa.	12.5	13.5	5.5	10.0
Pittsburgh	13.0	15.0	5.5	10.5
Allentown	13.0	14.5	5.5	10.5
Erie	12.5	15.0	5.5	10.0
*Scranton	12.5	14.25	5.5	10.5
Altoona	13.0	15.0	5.5	10.5
Dover, Del.	...	14.0	5.5	10.5
Wilmington	...	13.5	5.5	10.0

Price basis to undivided dealers, dealer tank-wagon price less 0.5 cent per gallon.

Discount on kerosene, 2 cents per gallon off tank-wagon price on tank-wagon deliveries of 25 gal. or more at one time. *Voluntary discount of 1 cent allowed to dealers only.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline—Tank truck	Serv. sta.	Incl. tax	Kero. tank wag.
San Francisco	16.5	17.5	4.5	11.5
Los Angeles	16.0	17.0	4.5	10.0
Fresno, Calif.	17.5	18.5	4.5	12.5
Phoenix, Ariz.	20.5	21.5	6.5	*17.5
Reno, Nev.	19.5	20.5	5.5	13.5
Portland, Ore.	19.0	20.0	6.5	13.5
Seattle, Wash.	19.0	20.0	6.5	13.5
Spokane	20.5	21.5	6.5	16.5
Tacoma	19.0	20.0	6.5	13.5

*Includes 5-cent state tax.

Discount to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents. To commercial consumers: On tank-wagon price; on single deliveries of 40 gal. and over, advance quantity discount extended at time of delivery, 3 cents. Service-station schedule applies on single deliveries less than 40 gal. On kerosene in tank-car, transport-truck, and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank wagon.

March 18, 1939, split dealer discount was canceled.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline—Cons'r tank car	Dlr. tank wag.	Incl. tax	Kero. tank wag.
Albany	11.5	12.5	5.5	7.3
*Met. New York, Manhat., Bronx, Queens, Brklyn., Staten Island	11.7	12.7	5.5	7.6
Buffalo	12.3	13.4	5.5	7.5
Rochester	12.0	13.8	5.5	8.1
Syracuse	11.9	11.7	5.5	8.2
Portland, Me.	11.0	11.7	5.5	7.4
Manchester, N.H.	12.1	12.5	5.5	8.5
Burlington, Vt.	12.2	12.3	5.5	7.9
Boston, Mass.	10.2	10.5	4.5	7.7
Worcester	10.5	11.5	4.5	7.8
Hartford, Conn.	10.8	11.5	4.5	7.5
New Haven	10.6	11.0	4.5	7.0
Providence, R. I.	9.9	11.4	4.5	7.7

*Does not include 2 per cent city sales tax, which is calculated on basis of net retail price exclusive of state and federal taxes. Metropolitan New York prices are undivided dealer prices; others are split dealer.

Effective August 8, 1940, the company changed its commercial consumer policy in New York and New England to the following:

Full compartment deliveries: Accounts buying less than 20,000 gal. annually, 0.5 cent above the commercial-consumer price; accounts buying from 20,000 to 120,000 gal. annually, commercial-consumer price; accounts buying 120,000 gal. annually and above, 0.25 cent off consumer price. Split compartment deliveries: Delivery of less than a full compartment, 250 gal., commercial-consumer price plus 1 cent. Steel-barrel deliveries: Commercial price plus 3 cents.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline—Tank wag.	Incl. tax	Kero. tank wag.
Denver, Colo.	13.5	5.5	10.5
Grand Junction	16.5	5.5	12.5
Pueblo	15.5	5.5	9.0
Casper, Wyo.	16.5	5.5	11.5
Cheyenne	14.5	5.5	11.0
Billings, Mont.	17.5	6.5	12.0
Butte	15.5	6.5	13.0
Great Falls	17.5	6.5	12.0
Helena	15.5	6.5	12.5
Salt Lake, Utah	16.0	5.5	14.0
Boise, Idaho	18.6	6.5	16.0
Twin Falls	21.6	6.5	16.5
Albu'que, N. M.	16.0	6.5	9.5
Roswell	14.0	7.0	8.0
Santa Fe	17.0	7.0	9.5

*Includes city tax of 0.5 cent. †Includes state tax of 1 mill.

Tank wagon represents price to consumers. Dealer represents price to dealers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline—Cons'r tank car	Dlr. tank wag.	Incl. tax	Kero tank wag
New Orleans, La.	14.25	16.75	8.5	†11.0
Baton Rouge	15.25	17.75	8.5	‡10.5
Alexandria	15.25	17.75	8.5	‡10.5
Lafayette	15.50	18.00	8.5	‡10.0
Lake Charles	15.25	17.75	8.5	‡10.0
Shreveport	14.00	16.50	8.5	‡9.0
Knoxville, Tenn.	18.50	20.00	8.5	12.5
Memphis	16.50	18.00	8.5	11.0
Chattanooga	18.00	17.35	8.5	12.0
Nashville	17.50	16.50	8.5	11.0
Bristol	18.75	18.75	8.5	12.0

Essolene at dealer price less 0.5 cent per gallon to undivided dealers.

†Includes 1-cent parish tax and 1-cent state tax. ‡Includes 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gal. or more in one territory take posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gal. at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less 0.5 cent per gallon. Kerosene prices include 1-cent state tax.

Effective February 24, 1939, the company reestablished in New Orleans the commercial consumer policy on motor fuel effective in the rest of the state.

Effective December 12, 1938, the company revised its commercial consumer policy on motor fuel in New Orleans, as follows: Single deliveries of less than 50 gal., consumer tank car plus 2 cents per gallon 50 to 199 gal., consumer tank car plus 1 cent per gallon; 200 gal. and over, consumer tank car plus 0.5 cent per gallon.

Oklahoma and Arkansas

CONTINENTAL OIL CO

	Gasoline—Tank wag.	Incl. tax	Kero. tank wag
Texarkana, Ark.	13.5	5.5	6.0
Fort Smith	13.5	5.5	6.5
Little Rock	16.0	8.0	8.0
Muskogee, Okla.	13.5	5.5	7.0
Oklahoma City	11.5	5.5	6.5
Tulsa	12.5	5.5	6.0

Tank wagon represents price to consumers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline—Tank wag.	Dlr.	Incl. tax	Kero. tank wag
Omaha	17.4	15.9	6.5	9.5
McCook	17.5	15.7	6.5	9.9
Norfolk	17.5	15.4	6.5	9.9
North Platte	17.8	15.5	6.5	10.2
Scottsbluff	18.4	16.0	6.5	10.8

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective January 1, 1935.

Texas

	Gasoline—Tank wag.	Dlr.	Incl. tax	Kero. tank wag
Dallas, Tex.	11.5	15.5	5.5	6.0
Fort Worth	11.5	15.5	5.5	7.0
Houston	12.0	16.0	6.5	8.0
San Antonio	12.5	17.0	5.5	8.0

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank wagon*
Oleum spirits	16.2
V.M.&P. naphtha	16.5
Cleaners' naphtha	15.5
Stanisol	15.5

*Prices include 3-cent Illinois tax but not 1-cent federal tax nor 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gal. lots if covered by contract.

Canada*

3-Star Imperial Gasoline

IMPERIAL OIL, LTD.

	Gasoline—Tank wag.	Incl. tax	Kero. tank wag
Halifax, N. S.	24.5	10.0	18.0
St. John, N. B.	24.5	10.0	18.0
Montreal, Que.	24.0	8.0	16.5
Toronto, Ont.	24.5	8.0	17.0
Hamilton, Ont.	24.5	8.0	17.0
Winnipeg, Man.	27.5	7.0	22.5
Brandon, Man.	28.9	7.0	22.5
Regina, Sask.	25.0	7.0	20.0
Saskatoon, Sask.	28.0	7.0	23.0
Edmonton, Alta.	25.9	7.0	20.0
Calgary, Alta.	23.0	7.0	18.0
Vancouver, B. C.	21.0	7.0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon prices. Discount to undivided dealers, 1 cent below tank-wagon price. In Maritime Provinces both divided and undivided dealers pay tank-wagon price.

Tank-Wagon Changes

Standard Oil Co. of Louisiana increased the dealer tank-wagon price on gasoline 1.6 cents per gallon September 27.

Socony-Vacuum Oil Co., Inc., was reported to have advanced tank-car and tank-wagon prices October 7 throughout New York and New England by 0.1 to 0.2 cent per gallon reflecting the firmer price base at primary markets on the Gulf Coast and higher tanker rates. Details on the changes will not be available until October 17.

Standard Oil Co. (Indiana) raised tank-wagon price of No. 1 fuel oil 0.25 cent per gallon October 7 on deliveries ranging from 150 gal. and higher in the Chicago area.

Prices of Refined Products

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of October 8, 1940

The quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents a gallon on lubricating oils. Octane ratings in Middle West, Mid-Continent, and Southwest are based on A.S.T.M. method of testing.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
72-74 octane (regular)	.04½	.04⅝
63-66 octane	.04	.04¼
60 octane and below	.03½	.03⅝
60-62 400 grades:		
72-74 octane (regular)	.04½	.04⅝
63-66 octane	.04	.04¼
60 octane and below	.03½	.03⅝

NORTH TEXAS—

U. S. Motor grades:		
72-74 octane (regular)	.04½	.04⅝
63-66 octane	.04	.04¼
60 octane and below	.03½	.03⅝
60-62 400	.03½	.03⅝

NORTH LOUISIANA (Ark. and N. La. delivery)—

U. S. Motor grades:		
72-74 octane (regular)	.04¾	.05
63-66 octane	.04¼	.04½
60 octane and below	.03⅞	.04⅛

ARKANSAS (Ark. and N. La. del.)—

U. S. Motor grades:		
72-74 octane (regular)		.04¾
60 octane and below		.04

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
72-74 octane (regular)	.04⅝	.04⅞
63-66 octane	.04¼	.04½
60 octane and below	.03⅞	.04⅛
60-62 400 grades:		
72-74 octane (regular)	.04⅝	.04⅞
63-66 octane	.04¼	.04½
60 octane and below	.03⅞	.04⅛

PENNSYLVANIA (inland refineries)—

74-76 octane (regular)		.06
72-74 octane		.05⅝

CALIFORNIA (domestic movement)—

58-60 400, 65 oct. and higher	.05½	.07¼
54-58 U. S. Motor	.04½	.06¼

EAST COAST (domestic)—

U. S. Motor grades:		
New York (Bayonne)*	.05	.06
Philadelphia	.05¼	.06½
Boston	.05¼	.05½
Baltimore	.05½	.07
Charleston, S. C.	.06	.07

*All grades of gasoline ⅛ to ¼ cent less for barge shipments. New York Harbor prices are for New York and New England delivery. Prices for New Jersey delivery ¼ cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
72-74 octane	.03¾	.04½
70-72 octane	.03⅞	.04¼
68-70 octane	.03¾	.04
65-67 octane	.03⅝	.04

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70	.02½	.02¾
Grade 18-55	.02¾	.03

NORTH TEXAS—

Grade 26-70	.02	.02¼
Grade 18-55	.02¼	.02½

CALIFORNIA—

75-85 375-390	.04½	.05¼

NORTH LOUISIANA (Ark. and N. La. delivery)—

Grade 26-70		.01⅞

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 i.b.p., 110-flash, 540-550 e.p.	.03½	.03⅝
41-43 gr., 300-320 i.b.p., 110-125 flash, 500-520 e.p.	.03⅝	.03¾
46-48 gr., 210-230 i.b.p., 480-max., e.p.	.03⅞	.04

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

42-44	.03⅞	.04
41-43	.03⅝	.03⅞

NORTH TEXAS—

41-43	.03⅝	.03⅞

NORTH LOUISIANA (Ark. and N. La. delivery)—

41-43	.03⅝	.04

ARKANSAS (Ark. and N. La. del.)—

41-43		.04¼

PENNSYLVANIA (inland refineries)—

46	.04⅞	.05
45	.04⅝	.04⅞

CHICAGO (Based on Group 3)—

42-44	.04	.04¼
41-43	.03⅞	.04⅛

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.04½	.05½

NEW YORK (Bayonne, N. J.)—

41-43		.048

GULF COAST (domestic)*—

41-43		.04

*Barge price ⅛ cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil	.03½	.03⅝
No. 1 prime white, 38-42	.03⅝	.03½
No. 1 straw, 38-40	.03¼	.03⅜
No. 2 straw, 32-36	.03¼	.03⅜
No. 3 zero to 10, 28-32	.03⅛	.03¼

NORTH TEXAS—

No. 1 prime white, 38-42		.03½
No. 1 straw, 38-40		.03⅜

NORTH LOUISIANA (Ark. and N. La. delivery)—

No. 2, 32-36	.03	.03⅛

ARKANSAS (Ark. and N. La. del.)—

No. 2, 32-36	.03¼	.03½

CHICAGO (Based on Group 3)—

Range oil	.03½	.03⅝
No. 1 prime white, 38-40	.03⅝	.03⅝
No. 2 straw, 32-36	.03¼	.03½
No. 3, zero to 15, 28-32	.03⅛	.03⅜

NEW YORK (Bayonne, N. J.)—

*No. 1		.048
*No. 2		.041
*No. 4		.041

Barge deliveries ⅛ to ¼ cent under above tank-car price.

Gas Oil and Fuel Oil

(Gas oil per gal., fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil, under 35	.02¾	.03
No. 5, low pour point, 18-22	.72½	.77½
No. 6, 15 and above, 8-14	.50	.55

NORTH TEXAS—

U.G.I. gas oil, under 35	.02¾	.02¾
No. 5 low pour point, 18-22	.72½	.77½
No. 6, 15 and above, 8-14	.50	.55

NORTH LOUISIANA (Ark. and N. La. delivery)—

10-14 fuel oil, industrial		.70

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02¾	.03
No. 5, low pour point, 18-22	.75	.80
No. 5, 15 and above, 18-22	.60	.70
No. 6, low pour point, 10-16	.60	.70
No. 6, 15 and above, 10-16	.50	.55

PENNSYLVANIA (inland refineries)—

36-40		.04

CALIFORNIA—

Los Angeles:		
30-40 gas oil, per bbl.	1.10	1.25
24 plus diesel, per bbl.	1.10	1.25
24 plus diesel (bunkers)	1.20	1.35
12-16 (bunkers at tidewater)	.65	.75
10-16 (cargo lots)	.65	.75
12-17 (tank cars)	.50	.75
10-17 (high sulfur)	.45	.65
San Joaquin Valley:		
10-18 (tank cars)	.50	.70
24 plus diesel, per bbl.	1.10	1.25
San Francisco:		
24 plus diesel, per bbl.	1.35	1.40
24 plus diesel (bunkers)	1.40	1.50
10-16 (bunkers)	.75	.80

GULF COAST—

No. 2 fuel	.03¼	.03½
43-47 diesel	.03¼	.03½
48-52 diesel	.03½	.03⅝
53-57 diesel	.03⅝	.03⅞
58-and-above diesel	.03⅞	.04
Diesel bunkers		1.50
Bunker C (bulk cargoes)		.80
Bunker C (bunkers)		.80

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil		.041
28-30 diesel (lighterage 6¼c per bbl.)		1.70
28-30 diesel (tank cars)		.041
Bunker C (to ocean-going ships in N. Y. Harbor	1.15	1.25
Industrial fuel (tank cars)		.03875

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

200-210 D, 10-25		.18
150-160 D, 0-10		.13½
150-160 D, 10-25		.13
100-110 D, 0-10		.15
100-110 D, 10-25		.12½
Steam refined:		
600 dark green (untreated)		.07

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):		
10 pour point		.14½
15 pour point		.13½
25 pour point	.12	.14
Steam refined:		
600	.07	.08
650	.08	.10
600 flash	.09	.11
630 flash	.11	.13

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

0-10 pour point:		
150-3		.08
180-3		.08½
200-3		.08½
250-3		.10
280-3		.10½
280-4		.10
300-3½		.11
350-3½		.11½
400-3½		.12
500-3½		.12½
600-3½		.13
100-2½ paraffin oil, 10-25		.05¼
10-25 pour point:		
200-3		.08
250-3		.09½
280-3		.10
280-4		.09½

GULF COAST—

Pale oils:		
100-3	.05⅛	.05¼
200-3	.07⅛	.07¼
300-3	.07½	.07⅝
500-3½	.08¼	.08½
750-3½	.08⅝	.08⅝
1,200-3½	.08⅝	.08½
2,000-4		.09
3,000-4		.10½
Red oils:		
200-5-6	.06⅞	.07
300-5-6	.07¼	.07½
500-5-6	.08	.08¼
750	.08⅝	.08½
1,200-5-6	.08½	.08⅝

CALIFORNIA (moving to dom. market)

Pale oils:		
100-2¼-3	.07¼	.08
200-2¼-3	.07¼	.08
300-2¼-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11½
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11¼
900-6½ plus	.09¼	.11¼

PENNSYLVANIA—

150 vis., at 70° F., 3 color, 400-405 flash.		
Zero pour point		.22⅛
10 pour point		.21⅞
15 pour point		.20⅛
25 pour point	.19	.20
200 vis. at 70° F., 3 color:		
Zero pour point		.24⅛
10 pour point		.23⅞
15 pour point		.22⅛
25 pour point	.21	.22

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (A.m.p.) w.c. scale	.02½	.03

PENNSYLVANIA (inland refineries)—

122-124 (A.m.p.) w.c. scale	.02½	.02⅝
124-126 (A.m.p.) w.c. scale	.02½	.02⅝

NEW YORK—

Wax in bags fully refined:		
125-127 (A.m.p.) wax		.0560
128-130 (A.m.p.) wax	.0560	.0570
130-132 (A.m.p.) wax		.0585
133-135 (A.m.p.) wax		.0615
135-137 (A.m.p.) wax		.0640
Crude scale:		
124-126 (A.m.p.) w.s.	.02½	.02⅝
124-126 (A.m.p.) y.s.	.02½	.02⅝
Petrolatum in barrels, carlcad lots:		
Dark green	.02125	.02625
Amber	.02375	.02875
Extra amber	.02625	.03000
Lily white	.04375	.05125
Snow white	.05125	.06000
Cream	.03375	.04125

Export Prices

GASOLINE

GULF COAST—

U. S. Motor		.03⅝
60-62 400		.03⅝
61-63 390	.03⅞	.04
64-66 375	.03⅝	.04

LOS ANGELES—

U. S. Motor grades:		
Above 69 octane	.05½	.05⅝
65-69 octane	.05¼	.05½
60-65 octane	.04½	.05

KEROSENE

GULF COAST—

41-43 water white	.04	.04⅛

LOS ANGELES—

41-43 water white	.05	.05⅛

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.o.s. in bbl.)—

Cylinder stocks:		
600 S.R. unfiltered	.15½	.16½
630 S.R. unfiltered	.16½	.17½
600 flash, S.R.	.17½	.18½
650 flash, S.R.	.20	.21
Bright stock:		
Light, 25 pour point	.20½	.21

NEUTRAL OIL

200-3 color		.27
150-3 color	.25	.25½

PARAFFIN WAX

NEW YORK (prices per lb.)—

123-125 A.m.p.		.05600
125-127 A.m.p.		.05690
128-130 A.m.p.		.05850
133-135 A.m.p.		.06150
135-137 A.m.p.		.06400
Crude scale:		
124-126 w.s.	.02½	.02⅝
124-126 y.s.	.02½	.02⅝

Market Record of Active Oil Stocks

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1940 High	1940 Low	Week ended Oct. 5 High	Week ended Oct. 5 Low	Week ended Oct. 5 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1939	Com. sh. earn. 1939	Com. sh. earn. 1938	1939 High	1939 Low	1938 High	1938 Low
58½	38½	46⅞	45½	46	Amerada Corp.	788,675	N.P.	50cQ	10-31-40	$2.00	$1.56	$2.07	74½	50	78	55
27⅛	18¼	21⅝	21¼	21⅝	Atlantic Refining	2,663,999	$25	25cQ	9-16-40	1.00	1.66	1.40	24¾	18⅛	27⅜	17¾
16⅝	3½	11⅜	10¼	10¾	Barber Asphalt Co.	390,223	$10	25c	5-21-40	.25	1.39	—.85	21	10¼	23¾	12⅛
13⅜	7⅛	8¼	8	8	Barnsdall Oil Co.	2,558,779	$5	15c	9-9-40	.90	.76	1.26	19½	11⅛	21⅜	10⅛
8⅛	5½	6	5⅞	6	Consolidated Oil Corp.	13,751,726	N.P.	12½cQ	11-15-40	.80	.55	.55	9⅞	6½	10¾	7
25	16½	17⅞	17⅜	17½	Continental Oil of Delaware	4,682,572	$5	25cQ	9-30-40	1.00	1.35	1.10	31½	19⅞	35¾	21¼
6⅞	3⅜	3¾	3⅝	3¾	Houston Oil	1,098,618	$25		10-17-30		.43	.83	9⅜	4½	9⅜	5
14⅜	9	10	9⅝	10	Lion Oil Refining	435,815	N.P.	25cQ	10-10-40	1.00	1.50	2.09	18⅛	10	25⅛	15⅝
17⅜	11½	13⅜	12⅞	13	Mid-Continent Petroleum	1,857,912	$10	40c	6-1-40	.60	1.42	.56	18	11⅛	22⅝	12¼
11	7⅛	9⅛	8¾	9⅛	Mission Corporation	1,378,645	$10	40c	12-15-39	.65	.87	1.04	14⅞	8¾	17¾	10⅝
9¾	4⅝	6⅝	5⅞	6⅜	National Supply	1,155,517	$10	....	12-22-37	....	—.87	—.79	15½	5⅝	23	12½
8¾	5⅜	6¼	6	6	Ohio Oil Co.	6,563,377	N.P.	20c	6-15-40	....	—.16	.25	10½	6	14⅞	8⅞
8¼	5⅝	5⅞	5⅝	5⅝	Pacific Western Oil	1,000,000	N.P.	40c	12-19-39	.40	.81	1.22	11⅞	7	15⅞	10¼
10½	6¾	..	..	..	Pan American Pet. Trans.	4,702,945	$5	....	12-21-39	....	1.10	.08	8¾	5	9¼	6¼
41¾	27⅛	37	34½	36	Phillips Petroleum	4,449,052	N.P.	50cQ	8-31-40	2.00	2.21	2.03	46½	31¼	44⅜	27¼
22¾	15	17	16⅜	16¾	Plymouth Oil Co.	1,038,633	$5	35cQ	9-30-40	§1.40	2.38	2.59	24	17⅛	25⅜	15
11½	7	7¼	7	7	Pure Oil Co.	3,982,031	N.P.	25c	12-20-39	.25	1.11	.38	11¾	6⅛	13½	8¼
8⅜	5⅞	8⅛	8	8	Richfield Oil Corp.	4,010,000	N.P.	50c	12-18-39	.50	.65	.51	10¼	6⅝	9⅞	5
20	11	13½	13	13¼	Seaboard Oil of Delaware	1,244,383	N.P.	25cQ	9-14-40	1.00	1.40	1.52	24⅜	15½	27½	15½
13⅛	7⅝	9	8⅝	8⅝	Shell Union Oil	13,070,625	N.P.	25c	7-16-40	.50	.77	.72	17¼	9⅞	18⅜	10
23¼	12¼	17½	17	17½	Skelly Oil	995,349	$15	25c	8-28-40	.75	1.99	2.27	29½	15½	34¾	18½
12½	7⅛	8⅜	8⅛	8¼	Socony-Vacuum	31,206,071	$15	25cSA	9-16-40	.50	1.10	1.29	15⅛	10¼	16⅜	10⅜
26⅛	17⅜	17⅞	17½	17½	Standard Oil of California	13,003,953	N.P.	25cQ	9-16-40	1.10	1.38	2.22	33⅝	24¼	34⅞	25⅛
29	20¾	25⅜	24½	25¼	Standard Oil (Indiana)	15,272,020	$25	50c†	9-16-40	1.25	2.23	1.82	30	22⅜	35½	24¾
46½	29⅞	34	33	33⅜	Standard Oil of New Jersey	27,280,998	$25	1.00†	6-15-40	1.25	3.26	2.86	53½	38	58⅜	39¾
65⅞	46¾	52	49½	51½	Sun Oil	2,434,863	N.P.	25cQ	9-16-40	1.00	2.74	1.07	66	45¾	65⅛	45
2½	1¼	1¼	1⅛	1¼	Superior Oil Corp.	1,388,979	$1	10c	12-28-38	....	.04	.24	3⅝	1⅜	4¼	1⅜
47⅝	33	36½	34¾	35	Texas Corp.	10,876,139	$25	50cQ	10-1-40	2.00	3.02	2.13	50¾	32½	49⅝	32⅝
4¼	2½	3	2⅞	2⅞	Texas Gulf Producing Co.	888,146	N.P.	10c	6-15-40	.20	.69	.86	5⅜	3¼	5⅞	2⅝
8⅝	5½	6	5⅞	5⅞	Texas Pacific Coal & Oil	888,236	$10	10c	9-3-40	.40	1.00	1.16	11⅜	7	12½	7
12	8¾	9½	9¼	9⅜	Tide Water Associated	6,371,827	$10	15c	9-3-40	.80	1.05	1.28	14¼	9½	15¾	10⅛
17½	12	13⅛	12¾	12¾	Union Oil Co. of California	4,666,270	$25	25c	8-10-40	1.05	1.25	1.47	19¾	15⅛	22½	17⅛
29⅞	22¾	28	27⅛	27⅛	Union Tank Car Co.	1,177,381	N.P.	45c	9-3-40	1.30	2.07	1.16	24¼	20⅛	23½	20
3⅝	1⅞	1⅞	1⅞	1⅞	Wilcox Oil & Gas	470,768	$5	10c	2-15-40	....	.77	.52	4¼	2⅜	3½	1⅝

*Also 5 per cent in stock. †Includes extras. ‡Also 2 per cent in stock. §Also 4 per cent in stock. ‖Also 2½ per cent in stock. ¶Also 1½ per cent in stock. —Deficit.

New York Curb Exchange

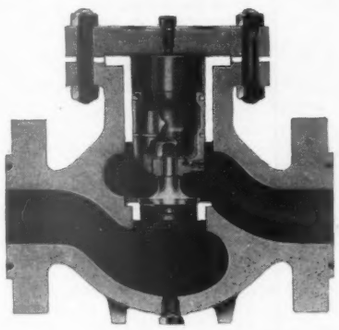
1940 High	1940 Low	Week ended Oct. 5 High	Week ended Oct. 5 Low	Week ended Oct. 5 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1939	Com. sh. earn. 1939	Com. sh. earn. 1938	1939 High	1939 Low	1938 High	1938 Low
10¾	4½	5½	5	5½	American Republics Corp.	1,308,049	$10	10c	7-11-38	....	$0.14	—.22	11¾	5½	11¾	5
3¼	1⅜	1⅞	1¾	1⅞	Bridgeport Machine Co.	263,700	N.P.	$1.25	12-30-37	....	—.95	—.14	7¼	2½	10¼	4⅞
43	28	38¾	38¼	38¾	Buckeye Pipe Line Co.	200,000	$50	$1	9-14-40	$2.50	3.13	2.36	34¾	26½	39	22½
117	95	106	106	106	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	9-23-40	6.00	7.87	5.32	130	108⅝	128	97
6¾	4	5¾	5⅝	5⅝	Cities Service (new)	3,703,978	$10	....	6-1-32	....	.68	.23	9¼	4¼	11	5⅛
2⅛	1	1⅛	1⅛	1⅛	Cosden Petroleum	465,332	$1	....	.....	....	....	....	2¼	½	2⅜	⅞
24¼	11⅝	13½	13	13½	Creole Petroleum	6,974,356	$5	50cSA†	6-15-40	1.00	1.38	1.64	28	16¾	27½	17½
4⅜	2⅞	3½	3½	3½	Darby Petroleum	351,390	$5	25cSA	1-15-39	.25	.03	.69	7⅛	3⅝	10¼	5½
2	1¼	1	1	1	Derby Oil & Refining	263,162	N.P.	....	.....	....	—.37	—.91	2⅝	1½	3½	1⅜
31	23	..	..	..	Eureka Pipe Line	50,000	$50	50c	11-1-40	2.00	.63	—.37	23	15⅛	31	16
39⅞	25⅛	30⅝	29½	29¾	Gulf Oil Corp.	9,076,202	$25	25cQ	10-1-40	2.00	1.69	1.43	45⅛	29¼	46⅞	33
68	47⅛	56¾	53¼	56¾	Humble Oil & Refining	8,987,840	N.P.	62½c	10-1-40	2.00	3.33	3.98	71	52½	72⅝	56
12⅜	5½	8	7¾	8	Imperial Oil of Canada	26,965,078	N.P.	37½c†	6-1-40	1.00	.71	.96	17	11⅜	19½	14⅛
7¾	3	3½	3⅜	3⅜	Indiana Pipe Line	300,000	$7.50	20c	11-15-40	.50	.33	.47	7¼	5½	9⅜	6
19¾	8¼	11¾	11⅛	11⅝	International Petroleum	14,324,088	N.P.	75c	6-1-40	1.75	1.19	1.98	27½	17	31¼	21
2¾	1⅝	2	2	2	Kirby Petroleum Co.	500,000	$1	10c	4-15-38	....	.06	.14	3¾	2⅛	5	2⅛
10¾	7⅝	9¼	9	9⅛	Lone Star Gas	5,518,347	N.P.	20c	8-22-40	.70	.98	.88	10½	7⅛	10⅜	6⅝
6¼	3¾	4¾	4⅜	4⅝	Louisiana Land & Exp.	2,966,762	$1	10c	9-14-40	.35	.22	.45	7⅜	4	9⅜	6½
17	10	10	10	10	Margay Oil Corp.	149,943	N.P.	25cQ	10-10-40	1.00	1.52	2.28	17	14½	24	16
8½	6½	7	7	7	Midwest Oil Co.	998,474	$10	45c	6-15-40	.90	.99	.93	8¾	6⅝	9¾	6⅝
6¼	4⅞	5⅜	5¼	5⅜	Mountain Producers	1,593,584	$10	30cSA	6-15-40	.60	.70	.62	6	4⅞	5⅜	4½
13¼	10	11¾	11¼	11¾	National Fuel Gas	3,810,183	N.P.	25cQ	10-15-40	1.00	.95	.84	14	11¼	14⅝	11½
12½	8¾	10	9¾	9¾	National Transit	509,000	$12.50	50c	6-15-40	.85	.91	.88	9½	7¼	9¼	6½
1¼	¾	1	1	1	New Mexico and Arizona	1,000,000	$1	1c	12-1-37	....	.02	.02	1⅜	1	2⅝	1½
7¾	5¼	..	..	..	New York Transit	100,000	$5	25c	9-20-40	.40	.88	.16	6	4	4½	3½
9⅞	6	8	8	8	Northern Pipe Line	120,000	$10	40c	6-1-40	.30	.31	.24	7	4½	6	4
5½	2½	3½	2⅞	3	Pantepec Oil	2,856,872	$1	....	.....	....	....	....	7⅝	4	7¾	3½
3¼	1¼	1¾	1⅝	1⅝	Root Petroleum Co.	336,045	$1	25c	2-1-37	....	.70	.17	5	1¼	4½	1⅝
2½	1½	2½	2⅜	2½	Ryan Consolidated	298,931	N.P.	....	.....	....	.16	.29	3	1⅞	4	2⅛
11¾	4⅞	..	..	..	Southern Pipe Line	100,000	$10	25c	9-3-40	.30	.25	—.27	4⅞	3½	5⅜	3¼
44	28	..	..	..	South Penn Oil	1,000,000	$25	37½c	9-27-40	3.00	2.84	1.44	40½	26¾	39	28¾
35	21	..	..	..	Southwest Penna. Pipe Lines	35,000	$50	50c	9-16-40	2.00	2.06	—.41	23	18	22⅛	16½
20⅞	16½	18⅝	18⅛	18⅝	Standard Oil of Kentucky	2,604,790	$10	25c	9-14-40	1.30	1.53	1.45	20⅛	17¼	18¾	15
41¾	26¼	32¼	31¾	32¼	Standard Oil of Ohio	753,740	$25	25c	9-14-40	1.50	6.64	1.81	32¾	17	22¾	16¼
2	1⅜	1⅜	1⅜	1⅜	Sunray Oil	1,975,876	$1	5c	5-1-40	.10	.25	.23	2⅜	1¾	3¼	2
3	2	3⅛	2⅞	3	Texon Oil & Land	936,024	$2	10c	9-30-40	.10	.49	.56	4	2⅝	5¼	3½
3⅝	2	2⅝	2¼	2⅜	Transwestern Oil Co.	750,000	$10	....	.....	....	—1.42	.12	6	2½	5¼	2⅝
2⅛	ⅱ	1¼	1⅛	1⅛	United Gas Corp.	7,818,959	$1	....	.....	....	—.55	—.51	3⅜	1⅛	5¼	2⅝

†Includes extras. —Deficit.

EQUIPMENT PROGRESS...

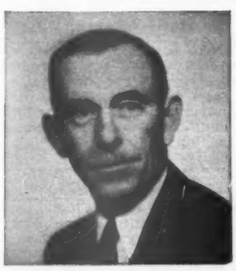
New Piston-Type Check Valve

The Daniel Orifice Fitting Co., 3352 Union Pacific Avenue, Los Angeles, Calif., which recently opened its new plant at 108 Portwood Street in Houston, Tex.,



announces a new item in its line of oil and gas specialties—the Daniel piston-type check valve. This check valve which has been thoroughly tested and proved in both the laboratory and the field before its announcement is specially designed for high-pressure working conditions where pulsations are severe. It has already established an unusual record of service in recycling-plant operations under the severest operating conditions.

Features of the new Daniel check valve are its special alloy-steel construction with chrome molybdenum iron pistons and liners, its stainless-steel valve seat, and its design which allows easy access to all working parts. In operation, the valve has a minimum pressure drop and is so engineered and designed that there is absolutely no pounding or chattering. These features, plus the field tests already run, are the reasons why the Daniel Orifice Fitting Co. offers an unconditional guarantee for this new check valve.



B & W Opens Houston Office

B & W, Inc., well-completion specialists, recently opened Gulf Coast headquarters at 302 Merchants and Manufacturers Building, Houston, Tex. Distribution of wall-cleaning guides and other well-completion specialties will be under the supervision of Bruce Barkis.

BUSINESS NOTES

D. K. Hutchcraft, Mid-Continent sales manager of Clark Brothers Co., Inc., has returned to his Tulsa office after a business trip to Miami Beach, Fla., followed by a holiday visit to Havana, Cuba.

An arrangement has been entered into between the National Cylinder Gas Co. and the Bastian-Blessing Co., which becomes effective at once. National will use the facilities of the Bastian-Blessing Co. and engage in the production of a complete line of gas welding and cutting equipment under the Rego trademark. The arrangement perpetuates the activities of the fine Rego distributor organization, making Rego available not only through such distributors but also through National district sales offices in all principal cities, according to Ellsworth L. Mills, vice president of the Bastian-Blessing Co., Chicago.

Fluor Corp. Celebrates Fiftieth Anniversary, Opens New General Offices at Los Angeles

This year marks the fiftieth anniversary of the Fluor Corp., Ltd. From its inception to the present time, the genius and guiding influence of J. S. Fluor, Sr., has been a most important factor in the company's growth and development. Although its operations in 1940 are international in character and its sales and engineering organization covers an entire nation, it constitutes an outstanding example of American business initiative and individual perseverance.

J. S. FLUOR, SR., president

Fifty-three years ago at the age of 21, J. S. Fluor left the little village of Sass, in Switzerland, and set out to join his two brothers who were

J. S. FLUOR, JR.
Vice president and assistant general manager

P. E. FLUOR
Executive vice president and general manager

making a reputation in the construction business at Oshkosh, Wis. With less than $100 capital, young Fluor went into partnership with the elder brothers and tackled the double job of mastering the English language and learning how to build lumbering equipment, saw mills, and paper mills in Wisconsin. This association continued from 1890 to 1912, when the rigors of Wisconsin winters were exchanged for the health-giving climate of southern California. J. S. Fluor settled in Santa Ana, where he still resides at the age of 74, retaining the office of president of the Fluor Corp., but relinquishing the duties of active management.

The real development of Fluor began in 1912 with the opening of the California period. With a native genius for accommodating his efforts to the needs of his environment, J. S. Fluor turned his attention from logs, lumber, and paper mills to the rapidly growing petroleum and natural-gas industry. One of the first projects was the building of an office and meter shops for the Southern Counties Gas Co.

After 12 years of foundation development, the Fluor Corp. was incorporated in 1924. Two sons had grown up and were interested in the business. The new corporation was headed by J. S. Fluor, Sr., president; P. E. Fluor, executive vice president and general manager; J. S. Fluor, Jr., vice president and assistant general manager, and F. E. Fischer, secretary and treasurer. The reputation of the Fluor Corp. soon spread from southern California to the Mid-Continent, and then beyond. Branch offices were opened in Tulsa, Houston, Tex., Pittsburgh, Pa., Chicago, and New York.

One of the outstanding developments of the corporation is the Fluor aerator-type atmospheric cooling tower. During the past 10 years, this type of Fluor tower has been erected at important refineries all over the world.

In November 1938 the Fluor Corp. acquired the patents, manufacturing facilities, experience, and personnel of the Cooling Tower Co., Inc., thereby rounding out the range of services to include forced-draft cooling towers and all other types of water-cooling equipment. In recent years, major efforts of the corporation have been devoted to the design and construction of complete plants for propane dewaxing, cracking, re-forming, natural-gas absorption, compressing, natural-gas pipe-line boosters, and allied equipment. Aggregate value of these plants exceeds $35,000,000.

Three of the most important developments in the history of natural-gasoline production have been contributed by Fluor in the last year or two. These are the recycle of stabilizer bottoms for increasing gasoline production, the presaturation process, and the use of glycolamine for the simultaneous desulfurization and dehydration of natural gas in one operation. These processes are all patented and are licensed to operators for the modernization of existing plants or as parts of new refineries.

The site of the new Fluor plant is at 2500 South Atlantic Boulevard, Los Angeles. Ample room for expansion is provided through the purchase of approximately 12½ acres of land. At the present time buildings actually constructed, or in the course of construction, involve over 60,000 sq. ft. of floor space. The new general offices occupy 10,000 sq. ft. and embody the latest and most modern fittings. In keeping with Fluor's extensive use of California redwood in its line of cooling towers, the executive offices are paneled in redwood finish.

Front view of administration building of the Fluor Corp.

CLASSIFIED ADVERTISING

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212 Kellogg Building, Washington, D. C.

Leases and Drilling Blocks

LEASES—East Texas, La., South Ark. 20 acres up, dollar acre up.—Owners—Address Attorney, Box 1122, Little Rock, Ark.

SPECIALIZED Geophysical investigations conducted for petroleum promise. In touch with many opportunities to and for development of drilling blocks. P. O. Box 364, Fort Worth, Texas.

FOR SALE Oil and gas leases and small production located in Kentucky shallow field, also tracts of proven Fluorspar and zinc deposits. Reports on request. W. P. HARLEY, Bowling Green, Kentucky.

CRANE-WARD County 20 ac. cheap in fee, under Magnolia lease. J. G. SMITH, 215 Littlefield Bldg., Austin, Texas.

NEW MEXICO
Oil and Gas Leases and Royalties.
ROY G. BARTON, Hobbs, N. M.

EAST TEXAS Trinity sand wildcat starting. Close in leases afford you ten to fifty for one bets next sixty days. E. CROFT, PROCTOR, TEXAS.

LEASE for Oil and Gas. 200 acres in Sec. 64, McMullen Co. and 480 acres in Sec. 340, Coke Co. Texas, and 160 acres in Sec. 15, Tp. 16s, SR. 15e, in Plaquemines Parish, La. (Also for trapping.) Owner J. Manz, Rt. 2, Goddard, Kan.

WILL SELL OR LEASE
All oil, gas, coal and other mineral rights in property known as Eagle Coal Co.; 12,000 acres; located at Stearns, McCreary Co., Kentucky. Railroad runs through property. Address: Harry A. Dempsey, oil and gas producer, 518 Leader Bldg., Cleveland, Ohio.

WANTED. Capital to develop Oil and Gas lease in producing area of Russell County, Kansas. Write Box 302, Benkelman, Nebraska.

HAVE lease on school and church grounds which join in Sec. 8, 2S-7E, Western Wayne County, which is ½ mile south of Black Panther 1000 bbl. well brought in recently. Want lease drilled at once Have 200 acres in Clay County, Illinois near production, 180 in Fayette County, Illinois, 5 miles northeast of Bond County Spindler wells. Leo H. Graves, Farina, Ill.

WELL LOGS, Drillers' logs of approximately 4,000 wells drilled in New Mexico are available from Well Log Division, New Mexico Bureau of Mines & Mineral Resources, Socorro, New Mexico. Write for price list C.

CASH paid for producing wells. Will help finance drlg. shal. gas land. Describe full, or no att'n paid. Box 93, Tulsa, Okla.

WILL LEASE SE - NW, L 1-2, 22-10-4e, SE-18-11-3e, $5.00. SE 24-11-3e, $7.50. F. Hurford, 24 Severn, Shawnee, Okla.

Leases and Drilling Blocks

BIG NEW MEXICO STATE LEASE SALE
Oil and Gas Rights, 10 year term. 5c per acre annual rental. $15.00 per forty, regardless of location. No middle man to pay; no salesman to bother you. Buy direct and save those dollars. Write for list.
HARRY S. WRIGHT
New Mexico State Lessee
Wright Bldg., Farmington, New Mexico.

CRANE CO., oil possibilities, cheap fee land, 3 mi. E Ward Gulf-Western drilling. J. G. SMITH, 215 Littlefield Building, Austin, Texas.

SOUTH Louisiana Producing Royalties: Wildcat leases and shooting blocks, inquiries invited. John Derryberry, Box 304, DeRidder, La.

U. S. OIL RESERVE LEASES. Regulations permit limited filings. Have filed our quota against our developments but have several blocks unfiled on which we had expense 10 cents per acre in abstracting, geologizing etc. and will arrange filings for those qualified and who will protect. Address Box K-903, The Oil and Gas Journal, Tulsa, Okla.

Legal Blanks

BURKHART'S legal blanks and general forms serving Mid-Cont. oil field since 1908—Okla. Kans. N. Mex. Tex. Ala. Ark. Fla. Ga. Ill. Ind. Ky. La. Mich. Miss. Mo. Neb. N. Dak. Tenn, Wyo. Free catalog samples on request. Burkhart Ptg. & Sta. Co. 115 S. Cinn. Tulsa, Oklahoma.

Mailing Lists

ROYALTY owners, Oil investors, Unit holders, Stockholders in Oil and Royalty Companies. Personnel lists of every branch of oil industry. All by States. We buy lists. New catalogues ready. Oil Industry Mailing List Co., Tulsa Loan Bldg., Tulsa, Oklahoma.

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HOMER L. FITCH, GEOPHYSICIST AND LOCATION ENGINEER
WHY drill dry holes? Our method only locates structures which contain oil or gas. Locations made by us will produce or no pay. Drawer 711, Brownsville, Texas.

ATTENTION. Why not locate Oil? A dry structure is not profitable. Unless we locate the Oil and Gas for you you pay us nothing for the survey. Maps and written reports furnished free. A Direct Geophysical Method that you can understand. Write Gravitational Selector, 14957 Lakewood Heights Boulevard, Lakewood, Ohio.

Royalties

ANDREW J. BARRETT
The Philtower
Tulsa, Oklahoma

Brokers—Salesmen

Sell in the most active area in the United States—The Permian Basin of West Texas and Southeastern New Mexico. From the standpoint of royalty investors this area has much to offer. Can supply you with choice non-producing royalties located on geophysical highs. Also drilling blocks, close in acreage to production, or wildcat leases. I maintain my own field men who cover this area for me. All offerings meet the requirements of the Security and Exchange Commission. Inquiries invited.

B. D. BUCKLEY
Paul Brown Bldg., St. Louis, Mo

PURCHASERS AND DISTRIBUTORS
PRODUCING ROYALTIES
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Ramsey Tower, Oklahoma City, Okla.

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REMEMBER EAST TEXAS
When all other methods fail, employ my divining or dowsing method. If oil exists this method finds it. Faults, broken treacherous areas accurately defined. Our Watson #2, first producer Wilmington, Calif. field, located by this method. More reliable than mechanical geophysics. Ask any unbiased oil authority. Many years' experience. A wise man investigates. George Miller. 1548 Post, Torrance. California.

Situations Wanted

REFINERY EXECUTIVE thoroughly trained and experienced in design construction and operation of refineries and the manufacture of all products. Efficient, energetic, diplomatic. Desires permanent connection or design construction and operation on partnership basis. Now employed. Box K-675, The Oil and Gas Journal, Tulsa, Oklahoma.

INDUSTRIAL relations manager desires connection with good organization, experienced in settling labor problems. 16 years' experience in the oil industry. Employed but desire change. Box K-781, The Oil and Gas Journal, Tulsa, Okla.

IN Charge Oil Accountant, with extensive experience in auditing and taxation for all phases of the industry, seeks connection affording opportunity. Recently employed by outstanding firms of professional accountants and as senior auditor by Bureau of Internal Revenue. Salary requirement nominal. Box K-804, The Oil and Gas Journal, Tulsa, Oklahoma.

YOUNG man wants to start at bottom and study selling oil field supplies or equipment. Box K-800, The Oil and Gas Journal, Tulsa, Oklahoma.

REFINERY TECHNICIAN AND SUPERINTENDENT. Experienced in manufacture of oils, waxes, asphalts, greases, etc., also in design and construction of plants for manufacture of high melting point waxes. Thirteen years' experience. Reply to Box K-780, The Oil and Gas Journal, Tulsa, Okla.

EXPERIENCED chemical engineer now employed desires position with progressive firm. B.S. degree in engineering. 12 years practical experience processing, management and refining operations. Qualified refinery engineer and Supt. Can furnish references. Address Box K-672, The Oil and Gas Journal, Tulsa, Okla.

PRODUCTION Superintendent—High class practical man, background of several years with one major company. Well rounded experience in rotary and cable-tool drilling and production. Address Box K-793, The Oil and Gas Journal, Tulsa.

POSITION WANTED
Toluol from petroleum. Oils from residuum. Box No. K-901, The Oil and Gas Journal, Tulsa, Okla.

MANUFACTURERS REPRESENTATIVE with large following in Mid-Continent wishes additional lines. Address Box K-902, The Oil and Gas Journal, Tulsa, Okla.

Help Wanted

SALESMAN by Seamless Tube and Pipe mill. 30 years or younger. Technical college training preferred with some steel product sales experience. Supply full particulars, experience and training by letter in own hand writing, with recent photograph, to Box K-794, The Oil and Gas Journal, Tulsa, Okla.

Incorporations

DELAWARE CHARTERS: Complete service $35. Submitted forms. Chas. G. Guyer, Inc., Wilmington, Delaware.

CAPITAL SEEKERS
Put your project before 260 Key-Men. Cost trifling. Details free. AMSTER LEONARD, Fox Theater Building, Detroit, Michigan

Warehouse Facilities

WAREHOUSE space, 1500 feet or part, with desk, phone and shipping service. Southwest Equipment Co., Dallas, Texas

Ranches—Farm Lands

225,000-A. So. Colo. cattle-sheep ranch, ½ mountains, ½ valley, no improvements, 2700-A irrigated vega grass, 6 streams, 2500-A lake. $3. Howard Ingram, Perrine Bldg., Oklahoma City, Okla.

Wanted

INFORMATION as to the use of Bentonite in oil well drilling fifteen to twenty years ago. Box K-900, The Oil and Gas Journal, Tulsa, Oklahoma.

Business Opportunities

OPPORTUNITY to invest five to ten thousand dollars with operating company owning two casinghead gas plants wanting to install profitable Butane plant. Very attractive proposition. Box K-803, The Oil and Gas Journal, Tulsa, Okla.

CLASSIFIED ADVERTISING RATES

Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgment is made, and proofs cannot be shown in advance of publication.

	1 time	2 times	3 times	4 times		1 time	2 times	3 times	4 times
3 Lines	*$1.05*	*$1.80*	*$2.55*	*$3.30*	*7 Lines*	*$2.45*	*$4.20*	*$5.95*	*$7.70*
4 Lines	*1.40*	*2.40*	*3.40*	*4.40*	*8 Lines*	*2.80*	*4.80*	*6.80*	*8.80*
5 Lines	*1.75*	*3.00*	*4.25*	*5.50*	*9 Lines*	*3.15*	*5.40*	*7.65*	*9.90*
6 Lines	*2.10*	*3.60*	*5.10*	*6.60*	*10 Lines*	*3.50*	*6.00*	*8.50*	*11.00*

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Classified Display is set with a border and may be used in one or two column sizes.

1 Inch	*1 time*	*$5.00*
1 Inch	*13 times*	*4.50 per inch*
1 Inch	*26 times*	*4.00 per inch*
1 Inch	*52 times*	*3.50 per inch*

This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

ONE 7' x 12' two-door steel tool house. One 4-in-line roller bearing crown block with 36" maganese steel sheaves on 20" beams. A-1 shape. 1300 Ramsey Tower, Oklahoma City, Oklahoma.

FOR SALE

One gasoline drilling rig with two 85 H.P. Waukesha motors and unitized draw works complete.

10,000 Ft. 2½" seamless tubing, used in flowing wells only.

10,000 Ft. 7" O.D. 26# seamless casing, once run.

15,000 Ft. 4½" O.D. seamless drill pipe equipped with both regular and full hole tool joints.

In addition to the above we have 20,000 Ft. screw line pipe in Oklahoma; also drilling rig capable of drilling to 6500 feet, complete stock of line pipe, casing, drilling and pumping equipment.

Wire, Write or Phone for Prices.

Louisiana Iron & Supply Co.
Shreveport, La.

TRACTORS

Caterpillars, crawler type, size "35," $375; size "65" with nigger-head winch $750; Caterpillar RD8 with bulldozer $2000; Allis-Chalmers Model L with bulldozer $1750. Guaranteed, slightly used. O. C. Evans, Mt. Sterling, Ky.

BIG WAUKESHA ENGINES AT A BARGAIN

Several new and slightly used Waukesha WKU and WOKU Engines of 100 and 150 H.P., bought for models we have discontinued.

Also one new Reeves Speed Reduction, Model 3B, at a bargain.

Real Savings for Quick Inventory Reduction.

THE JAEGER MACHINE CO.
Columbus, Ohio

25 K.W. and 40 K.W. Gas Engines, 220 volts, D.C. Two 100 K.W. Gas Engine-Generator Sets, 220 volts, D.C. 7x6 Ingersoll-Rand ER-1 Air compressor. Six-inch Oster Pipe Threading Machine. Also large stock of lathes, pipe machines, milling machines, etc. Send for our list.

Terms to suit.

CINCINNATI MACHINERY & SUPPLY CO.
28 West 2nd St., Cincinnati, Ohio

FOR SALE:

2000 Feet 6⅝ inch O.D., 10 thd, Range 2 Seamless Casing 65c foot. Wichita, Kansas. First Class Condition—Ready to Run.

JAY KORNFELD
1121 Union National Bk. Bldg.
Wichita, Kansas.

FOR SALE Cheap—Complete unitized 5 inch rotary rig. $1,500.00 cash. I. Weiner, Box 1224, Big Spring, Texas.

SPECIAL PIPE OFFERINGS

20,000 ft.—6" Line Pipe—19 lb. at Melon, Texas
73,000 ft.—4" Line Pipe—10.79 lb. at Breckenridge, Texas
15,000 ft.—3" Line Pipe—7.62 lb. at Breckenridge, Texas
10,000 ft.—8" Line Pipe—28 lb. at Tulsa, Oklahoma
5,000 ft.—6" Line Pipe—19 lb. at Tulsa, Oklahoma
100,000 ft.—4" Line Pipe—10.79 lb. at Tulsa, Oklahoma

SONKEN-GALAMBA SUPPLY COMPANY

W. C. Berry and H. J. Galamba
Riverview at Second, Kansas City, Kansas

Robt. W. Duden
2100 S. Union, Tulsa, Oklahoma

MODERN BUILDING for SALE at NOCONA, TEXAS

Ideal building for oil-field use. Thoroughly modern, with 7,800 square feet floor space. One story, constructed of brick and reinforced concrete. Foundation designed to carry four floors. Well lighted and ventilated, steel casements. Steam heating system. Located on highway, main paved street close to heart of town. Railroad spur within one block, available for extension to rear loading dock. Title clear. *Priced to sell.* For full particulars write H. J. Justin & Sons, Inc., Fort Worth, Tex.

TRANSIT and LEVEL REPAIRING

Fully equipped modern shop—all makes repaired
Low cost—service unsurpassed—all work guaranteed
Send for list of reconditioned instruments
We pay cash for used instruments

NATIONAL BLUE PRINT CO.
388 Union Station Bldg. Est. 1914 CHICAGO, ILL.
Chicago Sales Representative—W. & L. E. Gurley

FOR SALE OR EXCHANGE

Dismantling Paluxy Refinery, Talco, Texas. All types refinery equipment for sale. Will exchange portion for good lathe with 24" swing, 14 ft. bed, quick change, motor driven.

BOX 1011
Mount Pleasant, Texas.

6,000 ft. 10 lb. 4" standard double lengths 15 cents. 3 miles 6" 13 lb. double lengths 20 cents. 2 miles 5⅝ flue 9½ lb. double lengths 15 cents. 1 mile 3" standard double lengths 20 cents. M. J. Regan, Coffeyville, Kansas.

FOR SALE—USED BOILERS

3 90HP-225SWP Acme Oklahoma City
2 100HP-200SWP Lucey Oklahoma City
1 100HP-200SWP Lucey Wichita Falls

LUCEY PRODUCTS CORPORATION
TULSA

COMPLETE CORE DRILLING UNIT

Good for 2,000 feet, mounted on 1940 Model AC403 GMC Truck, equipped with 2 speed Eaton rear axle—500 feet 2⅝" O.D. drill rod with 3" Fl'ge couplings—15 Drill bits—Offered for immediate sale—

SONKEN-GALAMBA SUPPLY CO.
Tulsa, Oklahoma

FOR SALE—Complete rotary rig with Waukesha engines, derrick and 4" drill pipe. Excellent condition, attractive price. MURRAY TOOL & SUPPLY CO., 214 Beacon Bldg., Tulsa, Okla.

FOR SALE

Ingersoll Rand 4 X V G 2, Direct connected gas driven two stage compressor, 150 H. P. with all auxiliary equipment. Located in the East Texas field. Operated intermittently for fifteen months, excellent condition. MERRY BROS. & PERINI, INC., ABILENE, TEXAS.

FOR SALE

30-TON S/G LIMA GASOLINE, 0-4-0 SWG. LOCO. NEW 1931, GOOD COND. ROLLER BEARING. Immed. Delivery. SEND US YOUR INQUIRIES FOR ANY KIND OF LOCOMOTIVES.

IRON & STEEL PRODUCTS, INC.
13412 S. Brainard Ave.
Chicago, Ill.

"Anything containing IRON or STEEL"

45 ON 43 frame Star Spudder, fully equipped with 60 Caterpillar power, excellent condition, priced to sell, located in Nebraska field.

W. B. DAVIS
Blankenship Apartments Phone 341
Auburn, Nebraska.

For Sale—Maps

R. B. ROBINSON MAPS
Jackson, Miss. 3-Hart Bldg., Across Street from Heidelberg Hotel. Ownership maps All Over Mississippi.

1940 OIL AND GAS FIELD MAP
Texas, Eastern New M. Price $1.00. Wildcat Map $3.00 Published monthly. ZINGERY OIL MAP CO., Fort Worth, Tex.

Oil Industry Printing

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

Financing

JOHN MORRIS, Box 5411, Philadelphia, studied records 5000 financial houses. Found only 191 buy new issues. $4.00.

CRUDE-OIL PRICES IN REPRESENTATIVE FIELDS

Complete crude-price schedules are now being published in the first issue of each month. The last complete schedule was published in the October 3 issue. All changes in crude-oil-price schedules will be published completely in the first issues following the announcement of the changes. Following are representative crude-price schedules in barrels (42 gal.):

East Texas	$1.10
Conroe	1.27
Tepetate, Louisiana	1.03
Smackover, Arkansas, heavy	.73
Illinois basin	1.15
Pecos County, Texas	.78
Lance Creek, Wyoming	.77
Bradford, Pennsylvania	1.85

Gravity Schedules

Top prices include all gravities above grades designated, and low prices include all gravities below grades designated:

	Hill, California* Signal	Oklahoma, Kansas	Coast, Texas Gulf
14-14.9	$0.65	....	....
15-15.9	.65	....	....
16-16.9	.65	....	....
17-17.9	.65	....	....
18-18.9	.65	....	....
19-19.9	.69	....	$0.86
20-20.9	.73	$0.70	.88
21-21.9	.78	.72	.90
22-22.9	.82	.74	.92
23-23.9	.86	.76	.94
24-24.9	.90	.78	.96
25-25.9	.95	.80	.98
26-26.9	.99	.82	1.00
27-27.9	1.03	.84	1.02
28-28.9	1.07	.86	1.04
29-29.9	1.10	.88	1.06
30-30.9	1.14	.90	1.08
31-31.9	....	.92	1.10
32-32.9	....	.94	1.12
33-33.9	....	.96	1.14
34-34.9	....	.98	1.16
35-35.9	....	1.00	1.18
36-36.9	....	1.02	1.20
37-37.9	....	1.04	1.22
38-38.9	....	1.06	1.24
39-39.9	....	1.08	1.26
40-40.9	....	1.10	1.28

*Effective Feb. 1, 1940.

Crude-Oil Price Changes

Top price paid for Saxet field oil, Nueces County, Texas, was made $1.09 per barrel October 3 by Amsco Oil Purchasing Co. The Amsco price scale retrogresses 2 cents for each degree of gravity under 28° A.P.I. Other price schedules in the Saxet field provide minimum of 91 cents for 19° and continue up on a 2-cent differential to a top of $1.33 for 40° gravity and above.

Phillips Petroleum Co. of Bartlesville advanced its crude-oil-price postings at 7 a.m. September 27 in the Jones sand section of the Schuler field, Union County, Arkansas. The new quotations carry a top price of 95 cents per barrel for 40 gravity and higher with a 2-cent differential down to 63 cents for 25 gravity and below. The advance amounts to 12 cents per barrel and raises Phillips' postings to those of Standard Oil Co. of Louisiana.

Gulf Coast Markets

(Continued from Page 137)

being made or inquiries received. On the other hand there is not an excessive amount of material available to give much further trouble in the market, and general opinion now is that further changes will be upward.

Light fuels continue in fair shape with arrival of seasonal buying expected near. No. 2 fuel might be found as low as 3¼ cents by close bargaining and shopping around but 3⅜ cents seems to be bottom.

Coastal neutrals are showing no definite trends. There is no activity in any grades but suppliers are not pushing sales and claim not to be considering concessions.

New York Markets

(Continued from Page 137)

parently dependent either on a resumption of export demand or curtailment of operations and the latter course is being pursued as indicated by runs to stills in recent weeks.

Another dull spot in the general outlook is the export market. This dullness is indicated by foreign tanker trade, which is reported at a minimum. Inquiries have been reported from both Spain and Japan, but owners are reported reluctant to permit their boats to operate in waters adjacent to those countries. According to one marine report, there have been no charters to Spain since early September.

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